Current Debates in Social Sciences

15

Editor

MERYEM BULUT

BIDGE

Contents

The impact of the Russia-Ukraine War on the Global Supply of Seafarers: Forecasting Future Scenarios with Sensitivity Analysis

Arzu BAL[1]
Ersan BAŞAR[2]

Introduction

Globalization has led to further developments in the marine industry and increased global trade share. Besides, given that 99 % of the world's trade depends or relates to sea routes, commercial activity has become increasingly dependent on maritime transport. (Demirel, 2012). In that case, maritime transport has become an international trade field as a result of the global economic system and would be increasingly complex and competitive in this respect. Conversely, the human element and maritime safety are interconnected aspects, and given the challenging working environments, sailors assume a pivotal role onboard.

Per the 2015 report from the Baltic and International Maritime Council (BIMCO), the worldwide seafarer workforce is approximated to be 1.647.500 individuals, with 774.000 serving as officers and 873.500 as ratings (BIMCO, 2015). Using data on the proportional representation of seafarers in the global workforce, it was determined in 2015 that China had the largest contingent of seafarers, followed by the Philippines, Indonesia, Russia, and Ukraine, in that order (BIMCO, 2015). On the other hand, Drewry's report of 2018 provides insights into the seafarer supply figures across specific nations. In 2018, Russia emerged as the foremost European contributor to seafarers and ranked as the fourth largest globally. Meanwhile, the Philippines held the distinction of being the primary global contributor of seafarers, with China and India closely trailing in this regard. (Drewry, 2018).

The maritime sector is rather affected by global crises and random shocks (Stopford, 2009). As an example, economic downturns predominantly impact the costs associated with freight and containers, whereas unforeseen disruptions like conflicts and pandemics have a direct impact on the welfare of seafarers. The COVID-19 pandemic is current and may be the best example of this circumstance. The pandemic has presented specific challenges, including a rise in mental health concerns among seafarers while they are at sea, complications related to crew rotations, communication with onshore personnel at ports, and more. Furthermore, there has been an escalation in freight and container costs, exacerbating the already demanding working conditions for seafarers. The COVID-19 pandemic has intensified these adverse effects, and the growth in supply is struggling to match the expansion of the global fleet (Drewry, 2021).

On the other hand, the Russia-Ukraine crisis, which arose during the ongoing pandemic, also reveals an adverse scenario. Based on initial reports, it has come to light that this is the most extensive conventional military operation in Europe since the conclusion of World War II. (Papava, 2022). Due to this crisis, there has been widespread global condemnation, resulting in sanctions being imposed on Russia, along with international judgments. (Medyascope, 2022). For instance, one of the major economic allies, Germany, has halted the approval of the Nord Stream 2 project license, prominent logistics companies like Maersk have suspended their

---

[1] Res. Asst. Arzu BAL, Karadeniz Technical University, Orcid 0000-0001-8107-2193
[2] Prof. Dr. Ersan BAŞAR, Karadeniz Technical University, Orcid 0000-0002-1458-4102

activities in Russia, and Russian Sberbank has been compelled to cease its operations in Europe. Furthermore, Russia's annexation of Ukraine has direct implications for the worldwide energy markets. Moreover, the energy sector stands as one of the key revenue sources contributing to the Russian federal budget (oil exports are used to finance the occupation). Russia holds the top position as a producer of fossil energy resources, including oil, natural gas, and coal. It also stands as one of the foremost nations in terms of exporting these valuable commodities. (Kantörün, 2010). Additionally, Russia stands as the world's third-largest oil producer, trailing only the United States and Saudi Arabia in this regard. In December 2021, Russia's daily oil exports, which accounted for approximately 3.5 million barrels per day, reached a substantial 7.8 million barrels per day. (Özdemir-Daşcıoğlu, 2022). Moreover, Russia's portion of the overall oil imports into the United Kingdom, a nation that has opted to endorse oil sanctions, comprises approximately 10 percent. In contrast, the United Kingdom's slice of Russia's oil exports amounts to less than 1 percent. (Armstrong, 2022). As a result, Russian energy resources, which hold a significant role in the economies of numerous energy-importing nations, face the prospect of withdrawal from markets due to the sanctions imposed following the occupation of Ukraine.

Initially, when Russia began its occupation of Ukraine, there were predictions that its influence on global trade and logistics would be relatively constrained. Nevertheless, the prolonged and intensified nature of the occupation has resulted in escalating economic and trade challenges, including disruptions in the supply of commodities such as oil, natural gas, certain minerals, grains, and energy resources. Taking into account the market influence exerted by Russia and Ukraine within the industry, economic sanctions targeting Russia may yield short-term effectiveness. Nevertheless, as one assesses Russia's geostrategic advantages, its abundant energy resources, agricultural prowess, expansive geography, and pivotal role in global transportation, such sanctions are likely to prove feeble over the long haul. Furthermore, it's noteworthy that container transportation is particularly sensitive to economic and commercial downturns. Interestingly, during the Russian occupation, there has been an observed uptick in tanker and dry cargo indices, while container indices have exhibited a decline (Esmer, 2022).

Seafaring can be considered one of the most challenging professions in the world. Therefore, this profession, which includes many complex factors, prefers well-educated seafarers. Ćorović et al. (2012) remarked that the maritime sector is concerned that more than 40% of officers are older than 50, and 18% are older than 55. Furthermore, they highlighted that training in this profession is complex and requires a lot of work experience. On the other hand, seafarers have also faced challenging working conditions, fatigue, and mental health issues. Caesar et al. (2015) researched that a great majority of seafarers retired within ten years, and they expressed the reasons why as follows; inability to cope with challenging conditions at life at sea, learning/training difficulties, and unsupportive attitude from mentors at sea.

It should be pointed out that it will be complicated to replace any shortage that will occur in the system. The fact that maritime transport is gaining momentum every day in the globalizing world also increases the demand for seafarers. At this point, the countries providing a high supply of seafarers are of great importance. Thai et al. (2013) emphasized that there had been an increase in the supply of seafarers due to the increase in educational opportunities provided in countries with a high supply of seafarers, such as India and the Philippines. Furthermore, they researched that although Singapore is an essential player in world trade, its contribution to the supply of seafarers is inadequate. China has the potential to become a top supply country. Tang et al. (2016) examined Chinese seafarers' optimistic features like the broader labor market, oversupply of seafarers in the Chinese market, preferences of Chinese seafarers to work on foreign ships, and pessimistic qualities such as weak English skills, different culture, and safety understanding.

Furthermore, random shocks affect the maritime sector and, thereby, the supply-demand balance of seafarers. The COVID-19 pandemic that the world has been facing in the recent past is the closest example of these random shocks. Besides, the Russia-Ukraine conflict the world has been facing today is another recent example of these random shocks (Li et al., 2022). Patcheappane and Rangamani (2018) indicated that China, the Philippines, and India are substantial suppliers of officers, followed by the Russian Federation and Ukraine. It is apparent that the Russian Federation and Ukraine are as essential as the Philippines and China for the global supply of seafarers. The world is globalizing, and global trade is extending each passing day; besides, issues are rising on the other side of the medallion. Specific sectors, particularly the marine industry, faced challenging conditions with the COVID-19 pandemic and the Russian-Ukraine conflict afterward. Howard (2022) emphasized that according to the International Chamber of Shipping (ICS), the ongoing decrease in the supply of seafarers is set to be compounded because of the war in Ukraine. In addition, in most of the research efforts conducted, the marine industry is essential in many aspects and requires each actor to perform their role.

This paper used an increased number of seafarers between 2015-2021 to calculate the estimated scenarios for 2026. The total number of Russian seafarers was 97.061 in 2015 and 198.123 in 2021; Ukrainian seafarer numbers were 69.000 in 2015 and 76442 in 2021 (see table 1 and table 2). There are optimistic, pessimistic, and stable scenarios based on Russian and Ukrainian seafarer supply. On the other hand, there are major seafarer supply countries except for Russia and Ukraine, which will most probably be in a race in this circumstance. Furthermore, the novelty of this study is to exhibit potential future seafarer supply scenarios based on Russian and Ukrainian seafarers and discuss the potential supplier countries that can take Russian and Ukrainian places.

Seafarer Supply and Demand
Maritime transport is one of the most basic components of global transportation. The provision of a significant part of transportation by sea is directly related to the employment of employees (seafarers) in this sector. Therefore, the supply of seafarers and demand must be in balance. Nevertheless, even with a consistent expansion in the availability of seafarers, achieving a balance between supply and demand remains elusive. Herein, it is likely that the increase in the world merchant marine fleet is affecting this circumstance (UNCTAD, 2022)

The BIMCO Manpower report, released every five years, serves as an assessment of the equilibrium between the supply and demand of seafarers, along with their numbers. Additionally, Drewry publishes annual reports in the form of the Manning Annual Review & Forecast. According to the BIMCO Manpower report from 2010, the global pool of seafarers in 2010 was estimated to consist of 624.000 officers and 747.000 ratings (BIMCO, 2010). Based on the computations derived from the findings, the equilibrium between the supply and demand of seafarers in 2010 appears to be somewhat balanced. According to the 2010 report, it doesn't indicate a severe shortage issue, but rather a slight deficit of approximately 2%. Nevertheless, outcomes from the corporate survey reveal issues related to the availability of certain seafarer ranks, particularly senior officers, and engineers, within specific labour markets (Thai et al., 2013). Additionally, there are indications of persistent difficulties in recruiting and retaining personnel, particularly in specific sectors of the industry, such as tankers and offshore support vessels (BIMCO, 2010). Hence, there is a growing concern about the potential future shortage of seafarers. The BIMCO Manpower report for 2015 similarly notes that the worldwide pool of seafarers in 2015 was estimated at 1.647.500, with 774.000 serving as officers and 873,500 as ratings (BIMCO, 2015). A noticeable rise in the projected seafarer supply becomes evident when comparing the data with the BIMCO 2010 report. The count of officers, for instance,

witnessed a 34% increase between 2005 and 2010, and according to the 2015 report, it is estimated to have grown by 24% over the preceding five years.

The BIMCO Manpower report for 2015 further reveals that the worldwide need for seafarers in 2015 was approximated at 1.545.000, with 790.500 serving as officers and 754.500 as ratings. It's noteworthy that there has been a consistent upward trend in global seafarer demand every five years since 2005. In contrast, there have also been consistent increments in the global pool of seafarers. Nevertheless, when examining the period from 2005 to 2015, particularly in the case of officers, it becomes apparent that there is an imbalance between supply and demand. Despite the steady growth in the supply and demand for officers, it has been deemed insufficient. Conversely, in the case of ratings, it has been noted that the supply has matched the demand from 2005 to 2015. While the supply currently aligns with the demand, there's a likelihood of a future shortage of ratings as supply and demand come closer to equilibrium. When considering the total number of seafarers (both ratings and officers), it was observed that the supply was adequate in 2005 and 2015 but fell short in 2010 (BIMCO, 2015)
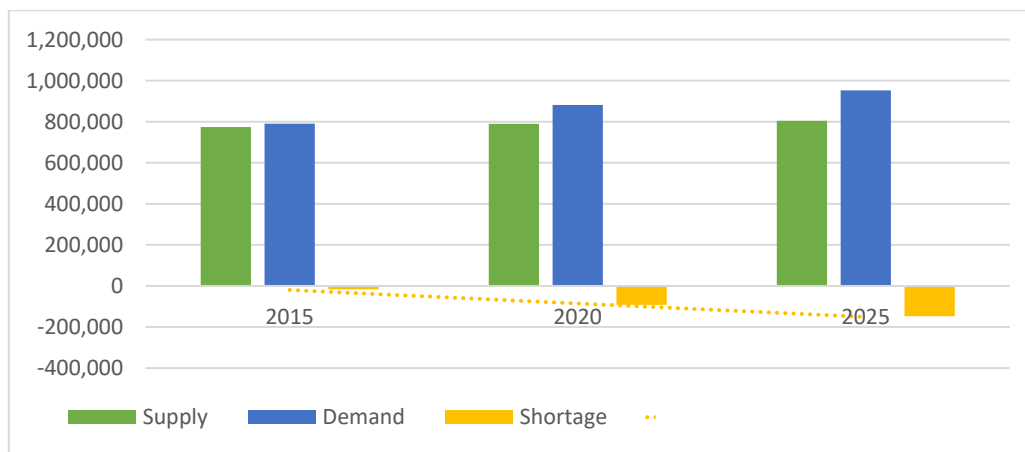
Figure 1. Basic Forecast for the Future Supply-Demand Balance for Officers. Source: BIMCO, (2015).

The BIMCO 2015 report also includes projections for 2020 and 2025, using data from 2005 to 2015 as a basis (refer to figure 1). According to these forecasts, the demand for seafarers is expected to continue rising, while the supply will likely fall short. Consequently, the 16.500 shortfalls in 2015 is estimated to increase to 92.000 by 2020 and further to 147.500 by 2025.

The Importance of Russia and Ukraine in the Global Supply of Seafarers

The Russian Federation holds a substantial stake in the maritime industry, making its role within this sector highly significant. Furthermore, from a global perspective, the Russian Federation plays a pivotal role in the supply of seafarers (Lušić et al., 2019). As per the 2020 data from UNCTAD, the Russian Federation has a seafarer population numbering 198.123, with officers constituting 8,36% and ratings 12,22% of this total. This places the Russian Federation as the world's fourth-largest provider of seafarers. Furthermore, it ranks as the fifth-largest source of officers and the fourth-largest source of ratings globally. The Russian Federation serves as a vital contributor of seafarers, primarily representing the largest regional source, responsible for more than 5% of the global merchant fleet's labour force (Drewry, 2021). In addition to the substantial presence of Russian ratings, the Russian Federation also plays a notable role with highly skilled seafarers in the Arctic region. However, it's worth noting that the Russian Federation's carrying capacity, categorized by ship type in its national fleet,

exhibited a declining trend between 2005 and 2010. Nevertheless, starting from 2010, there was a consistent upward trajectory observed, extending through to 2020. This pattern was consistent across various ship types year after year. Consequently, the growth rate of the Russian Federation's fleet reached +6,5% in 2020 (UNCTADSTAT, 2020).

On the other hand, Ukraine, the second party involved in the conflict, possesses a substantial presence in the maritime industry and serves as a crucial source of seafarers. As per the UNCTAD 2020 data, Ukraine boasts a seafarer population of 76.442, comprising 5,49% officers and 2,84% ratings. This positions Ukraine as the world's fifth-largest provider of seafarers. Additionally, Ukraine holds the rank of the fifth-largest supplier of ratings globally, and as the second-largest maritime crew supplier in Europe, it contributes approximately 5% to the total global merchant seafarer population (Drewry, 2021). Ukrainian seafarers share many characteristics with their Russian counterparts and are widely favored for employment in the global merchant fleet. Ukraine boasts a higher number of ratings compared to the Russian Federation and offers cost-effective solutions. Furthermore, Ukraine's overall merchandise trade showed an upward trend between 2005 and 2010. Nevertheless, a decline was evident between 2010 and 2015, followed by a resurgence in growth post-2015. Consequently, Ukraine experienced a -1,7% decline in merchandise exports in 2020. Additionally, Ukraine's carrying capacity, categorized by ship type within its national fleet, exhibited a decreasing trend between 2005 and 2020. The growth rate for Ukraine's fleet was calculated at +2,1% in 2020 (UNCTADSTAT, 2020).

Material and Method

Nearly every data analyst, particularly professionals in middle to upper management, heavily relies on What-if Excel for enhanced, expedited, and precise decision-making grounded in data. What-if analysis proves invaluable in numerous scenarios, including the ability to suggest various budgetary proposals contingent on revenue, predict future outcomes based on historical data, and determine alternative input values that achieve a desired result when a specific outcome is expected due to a formula (Golfarelli et al., 2006). A what-if analysis, often referred to as sensitivity analysis, strives to gauge the impact of various outcomes within a statistical model, all while factoring in risk assessment (Saltelli, 2002). Sensitivity analysis, a method rooted in situational examination, investigates how changing independent variables can influence the dependent variable. This approach is employed to anticipate outcomes when specific conditions are applied during the analysis. It is frequently employed for testing, forecasting, and assessing results.

The sentiment analysis formula essentially functions as a financial model in Excel, where the analyst is tasked with defining the fundamental variables for the output formula. Subsequently, they assess the output by varying combinations of independent variables. In mathematical terms, the formula for the dependent output is represented as follows:

$$Z = X^2 + Y^2$$

Performing Sensitivity Analysis (Step by Step):
- Step 1: Initially, the analyst must create the foundational formula that will serve as the output equation. As an illustration, let's consider using the Net Present Value (NPV) formula as the output equation.
- Step 2: Subsequently, the analyst must identify the variables that require adjustment, as they play a pivotal role in the output equation. For instance, in the Excel NPV formula, the cost of capital and the initial investment could serve as independent variables.
- Step 3: Proceed to establish the feasible range for the parameters.

- Step 4: Then, launch an Excel spreadsheet and organize one set of the parameters along the rows and the other set along the columns.
- Step 5: Following that, navigate to the "Data" tab and activate the "Analysis What If" feature. Within this option, choose the "Data Table" function.
- Step 6: Subsequently, input the value in the "Row input cell" corresponding to the first argument, and in the "Column input cell" corresponding to the second argument.
  Step 7: Lastly, press "Enter" to confirm the table's validity, which will then display the potential outcomes. This table, established through this process, is known as the sensitivity table.

The benefits of sensitivity analysis: (Kenton, 2022).
- Comprehending Influential Factors: This involves examining the manner in which various external elements interplay with a particular project or endeavor. This aids management in gaining deeper insight into which input variables might exert an influence on output variables.
- Mitigating Uncertainty: Elaborate sensitivity analysis models serve as educational tools, imparting insights into the diverse factors that affect a project. Consequently, this knowledge empowers project team members to anticipate potential challenges or opportunities, reducing uncertainty in the process.
- Detecting Mistakes: The initial assumptions used in the baseline analysis could potentially contain unnoticed errors. Through various analytical iterations, management can identify and rectify any errors that may have been overlooked in the original analysis.
- Streamlining the Model: Excessively intricate models can make it challenging to analyse input variables effectively. Through sensitivity analysis, users gain clarity on which factors are inconsequential and can therefore be eliminated from the model due to their lack of significance.
- Conveying Findings: Senior management may already exhibit a defensive or inquisitive stance regarding a project. Consolidating analyses of various scenarios serves as an informative tool for decision-makers, providing them with insights into alternative outcomes that may pique their interest.
- Attaining Objectives: Management often sets forth long-term strategic objectives that must align with specific milestones. Through sensitivity analysis, an organization gains enhanced comprehension of how a project can evolve and what circumstances are necessary for the team to achieve its predefined performance metrics.

Findings and Discussion

Potential future scenarios of change in global seafarer supply in 2026 are created by using Sensitivity analysis. Furthermore, this study targeted Russian and Ukrainian seafarers. However, the ongoing conflict between Russia and Ukraine limits the research's scope and scale. Russian and Ukrainian seafarer numbers (separately ratings and officers and total number) according to the UNCTAD data have been used (UNCTAD, 2021). The number of seafarers in 2015 and 2021 has been examined, and the percentage of Russia and Ukraine's supply of seafarers worldwide has been calculated (see table 1 and table 2)

Table 1. Seafarer Numbers (2015)

	Total Officers	Total Ratings	Total
Russian Fed.	47.972	49.089	97.061
Ukraine	39.000	30.000	69.000
Total	**86.972**	**79.089**	**166.061**

Table 2. Seafarer Numbers (2021)

	Total Officers	Total Ratings	Total
Russian Fed.	71.652	126.471	198.123
Ukraine	47.059	29.383	76.442
Total	**118.711**	**155.854**	**274.565**

This section presents the estimated variables in the global supply of seafarers in Russia and Ukraine using sensitivity analysis. Sensitivity analysis has been employed to forecast the result of a decision when confronted with a predefined spectrum of variables. According to UNCTAD 2015 data, the number of Russian seafarers was 97.061; by 2021, this number had increased by 120% to 198.123. As for Ukraine, the number of seafarers in 2015 was 69.000, and by 2021 this number had increased by 9,8% to 76.442. In this context, it is undeniably evident that both Russia and Ukraine hold a significant position in the global seafarer supply chain.

Table 3: Sensitivity Analysis of Ukrainian Seafarers

Scenario	Current Value (2021)	Optimistic (-50%)	Pessimistic (-90%)	Stable increase (9,8%)
Ukraine	76.442	38.221	7.644	83.933
World Percentage	3,511937933	1,755968967	0,351184605	3,856093333

Table 4: Sensitivity Analysis on Russian Seafarers

Scenario	Current Value:	Optimistic (-50%)	Pessimistic (-90%)	Stable increase (120%)
Russian Fed.	198.123	99.061	19.812	435.870
World Percentage	9,102269423	4,55111174	0,910213159	20,02496516

As can be seen from Table 3 and Table 4, the numbers of Russian and Ukrainian seafarers were examined in 3 scenarios. These scenarios can be listed as pessimistic, optimistic, and stable increases.

Table 5: Estimated Seafarer Number Scenarios of Ukraine and Russia for the Year 2026

Scenario	Current Value	Optimistic (-50%)	Pessimistic (-90%)	Stable increase (120%+9,8%)
Russian Fed.	198.123	99.061	19.812	435.870
Ukraine	76.442	38.221	7.644	88.933

There are four (4) future scenarios created by the authors (see table 5). The first scenario (current value) states the numbers of Russian and Ukrainian seafarers remain the same as in the 2021 data and cannot provide new seafarers for the system. When the supply of seafarers is calculated according to the increase in 2015-2021, it is determined that the supply of Russian and Ukrainian seafarers is 12,6% worldwide. While this number was 14% in 2021, the number of Russian and Ukrainian seafarers remains constant against the global increase, leading to a 2% decrease in the supply of Russian and Ukrainian seafarers.

In the second scenario (optimistic), the number of seafarers who withdraw from the system at their request or due to war was reduced by 50%. In this case, the number of seafarers provided by Russia and Ukraine to the system has halved. Russia and Ukraine decreased by 50% in the face of an increase in the world's supply of seafarers to 6,3%.

The third scenario shows (pessimistic) the worst-case scenario. The withdrawal of 90% of Russian and Ukrainian seafarers from the system, which has an important place in the global supply of seafarers, constitutes a significant shortage. The share of Russia and Ukraine, whose share worldwide was 12,6% in 2021, decreased to 1,2% under the third scenario.

The fourth and final scenario indicates what the situation would have been without war. It can be considered an imaginary scenario that is impossible to realize. What if Russia and Ukraine had increased by 120% and 9,8%, respectively, their share in the global supply of seafarers would have been 24,1% by 2016 (The Increase in the world is calculated based on the increase in 2015-2021).

Conclusion

The maritime industry is a global and dynamic sector whose importance in global trade cannot be ignored. Seafarers play a vital role to ensure the continuity of the maritime sector and in this context their employment is essential. However, with the younger generation's declining interest in pursuing seafaring careers and a reduction in the number of maritime graduates entering the workforce, the recruitment of experienced seafarers has grown increasingly challenging. Simultaneously, the demanding working conditions and the impact of unforeseen disruptions have prompted seafarers to reconsider their involvement in the industry. This situation has adverse consequences on the equilibrium between seafarer supply and demand.

As indicated by the 2021 BIMCO report, the top five nations by estimated seafarer numbers, encompassing all ranks, are the Philippines, Russian Federation, Indonesia, China, and India, in that order. In terms of officers, the ranking remains consistent with the Philippines leading, followed by the Russian Federation, China, India, and Indonesia. Similarly, for ratings, the Philippines takes the lead, trailed by the Russian Federation, Indonesia, China, and India. Even though there is a tidy supply chain by the largest supplier countries for seafarers' supply-demand balance by year, a shortage has persisted consistently, albeit at a relatively low level, since 2005.

The maritime sector, which has a global aspect, is therefore also affected by global crises. The maritime sector, which has recently faced the COVID-19 pandemic, it is currently

grappling with a fresh crisis due to the ongoing conflict between Russia and Ukraine. Consequently, certain sanctions levied against Russia due to the conflict may potentially lead to the exclusion of Russian seafarers from the industry. Furthermore, for the same reasons, Ukrainian seafarers will also withdraw from the industry to participate in the war. On the other hand, Both Russia and Ukraine might soon relinquish their positions as major contributors to the seafarer supply chain. Considering the employment of seafarers, which is one of the main components of maritime transport, which is gaining momentum, the possible negative effects of this circumstance, both now and in the future, should be taken into account.

Securing the services of Ukrainian and Russian seafarers had grown increasingly challenging, adding strain to a workforce already grappling with the effects of the COVID-19 pandemic (Smith, 2022). Furthermore, Jan Hoffmann, who leads the trade logistics division at UNCTAD, remarks: *'The war in Ukraine impressively shows again how globalized the shipping business is: Shifts in demand in one corner of the world lead to changes in prices and fleet deployment in many other corners of the world'* (Mann, 2022).

As a result, considering the current and expected future shortage of seafarers will be challenging for the industry. One of the largest supplier countries, Russia, and one of the significant supplier countries, Ukraine, withdraw from the industry due to the conflict will negatively affect the supply of seafarers and therefore future demand. This study evaluated Russian and Ukrainian seafarer numbers according to BIMCO manpower reports. Furthermore, future predictions were created according to three (3) different scenarios. Considering the future scenarios, it is inevitable that the expected seafarer shortage in the future will be worse. In this case, it should be pointed out that alternative suppliers will be in demand.

KAYNAKÇA

Armstrong, M. (2022). Russia's Most İmportant Oil Export Partners. [Online]. Available: https://www.statista.com/chart/26999/russia-biggest-oil-export-partners/ (Accessed: 07.03.2022).

BIMCO Manpower 2010 Update. (2010). The Worldwide Demand for and Supply of Seafarers. https://www.dieselduck.info/library/10%20hr/2012%20BIMCO%20ISF%20Manpower%20Study.pdf

Caesar, L. D., Cahoon, S., & Fei, J. (2015). Exploring the range of retention issues for seafarers in global shipping: opportunities for further research. WMU J Marit Affairs, 14, 141–157. DOI: 10.1007/s13437-015-0078-0.

Ćorović, B., Pejaković-Kovačević, S., & Šekularac – Ivošević, S. (2012). Analysis of Recent Supply and Demand of Educated Seafarers in Montenegro and Worldwide. TRANSACTIONS ON MARITIME SCIENCE, 02, 117-121.

Demirel, E. (2012). Dünyadaki Ve Türkiye'deki İstihdam İhtiyaçlari Doğrultusunda Türkiye'de Gemiadamları Eğitiminin Geliştirilmesi [Unpublished doctoral dissertation, İstanbul Üniversitesi- Deniz Bilimleri ve İşletmeciliği Enstitüsü].

Drewry. (2018). Manning Annual Review and Forecast 2018/19. Reports, 57. [Online]. Available: https://commons.wmu.se/lib_reports/57.

Drewry. (2021). Manning Annual Review and Forecast 2021/22. Reports. [Online]. Available: https://commons.wmu.se/lib_reports.

Esmer, S. (2022). Rusya-Ukrayna Savaşının Ulaştırma Coğrafyasına Etkileri. [Online]. Available: https://www-7deniz-net.cdn.ampproject.org/c/s/www.7deniz.net/amp/haber-rusya-ukrayna-savasinin-ulastirma-cografyasina-etkileri-41958.html.

Golfarelli, M., Rizzi, S., & Proli, A. (2006). Designing what-if analysis: Towards a methodology. DOLAP: Proceedings of the ACM International Workshop on Data Warehousing and OLAP, 51-58. DOI: 10.1145/1183512.1183523.

Howard, G. (2022, March 10). Ukrainian and Russian seafarer shortage to exacerbate supply chain disruption. Seatrade Maritime News. https://www.seatrade-maritime.com/management-crewing/ukrainian-and-russia-seafarer-shortage-exacerbate-supply-chain-disruption

Kantörün, U. (2010). Bölgesel Enerji Politikaları Ve Türkiye. Bilge Strateji, 2(3), 87-114.

Kenton, W. (2022). Sensitivity Analysis Definition. [Online]. Available: https://www.investopedia.com/terms/s/sensitivityanalysis.asp#:~:text=Sensitivity%20analysis%20is%20a%20financial,a%20certain%20range%20of%20variables.

Lušić, Z., Bakota, M., Čorić, M., & Skolko, I. (2019). Seafarer Market – Challenges for the Future. Transactions on Maritime Science, 07, 62-74.

Mann, J. (2022). The Russia-Ukraine conflict's global impact on maritime trade. Ship Technology. https://www.ship-technology.com/analysis/the-russia-ukraine-conflicts-global-impact-on-maritime-trade/.

Manpower Report 2015. (2015). The Global Supply and Demand for Seafarers in 2015. [Online]. Available: https://www.ics-shipping.org/wp-content/uploads/2020/08/manpower-report-2015-executive-summary.pdf.

Manpower Report 2015. (2015). The Global Supply and Demand for Seafarers in 2015. [Online]. Available: https://www.ics-shipping.org/wp-content/uploads/2020/08/manpower-report-2015-executive-summary.pdf.

Medyascope. (2022, March 7). Rusya'ya Hangi Yaptırımlar Uygulanıyor? [Online]. Available: https://medyascope.tv/2022/03/07/rusyaya-hangi-yaptirimlar-uygulaniyor/

Özdemir-Daşcıoğlu, B. Z. (2022). Rusya Yaptırımları ve Enerji Güvenliğine Etkileri. Seta Analiz, 336, 1-20.

Papaya, V. (2022). Cold War vs. Hot War in 2022. Eurasia Review, A Journal of Analysis and News.

Patchiappane, M., & Rengamani, J. (2018). Study On The Demand And Supply Of Seafarers And Its Impact on Maritime Industry. Journal of Management (JOM), 5(5), 63-72.

Saltelli, A. (2002). Sensitivity Analysis for Importance Assessment. Risk analysis: an official publication of the Society for Risk Analysis, 22, 579-90. DOI: 10.1111/027

Smith, E. JB. (2022). War in Ukraine may lead to seafarer shortage and impact on supply chains. Abc news. https://www.abc.net.au/news/2022-06-25/ukraine-russia-war-impact-on-seafarers-shipping-cargo-trade/101170448.

Stopford, M. (2009). Maritime Economics (3rd ed.). Routledge.

Tang, L., Oliver, M., Llangco, S., & Zhao, Z. (2016). Transformations and continuities of issues related to Chinese participation in the global seafarers' labour market. Maritime Policy & Management, 43(3), 344-355. DOI: 10.1080/03088839.2015.1043751.

Thai, V. V., Balasubramanyam, L., Yeoh, K. K. Lin, & Norsofiana, S. (2013). Revisiting the seafarer shortage problem: the case of Singapore. Maritime Policy & Management, 40(1), 80-94. DOI: 10.1080/03088839.2012.744480.

UNCTAD. (2022). Review of Maritime Transport: Navigating Stormy Waters. https://unctad.org/system/files/official-document/rmt2022_en.pdf.

UNCTADSTAT. (2020). Country Profile: Russian Federation. https://unctadstat.unctad.org/CountryProfile/MaritimeProfile/en-GB/643/index.html.

UNCTADSTAT. (2020). Country Profile: Ukraine. https://unctadstat.unctad.org/CountryProfile/MaritimeProfile/en-GB/804/index.html.

Sleep Behaviour and Socio-Economic Status: Descriptive Evidence on Turkey

Burcu DÜZGÜN ÖNCEL

Introduction

The economic well-being is fundamentally related to how individuals allocate their time. Vast majority of literature studies how individuals allocate their time for market and non-market work (Aguiar and Hurst, 2007; Becker, 1965; Bopart and Hgai, 2018; Gimenez-Nadal and Sevilla, 2012;). However, number of studies examine sleep durations and how sleep is related to waking activites and socioeconomic status is limited. To put differently, the medical literature on sleep and its associations with overall health is extensive, while the 'economics of sleep' literature, despite its economic significance, remains restrained. Many studies have indicated that consistent insufficient sleep is associated with a higher risk of deteriorating health, including an increased likelihood of obesity, diabetes, depression and coronary heart disease (Antillon et al., 2014; Bin et al., 2012; Bonke, 2015; Zhai et al.,2015). Inefficient sleep is also linked to reduced productivity and life satisfaction (Bin et al., 2012; Hafner et al.,2017; Pagan, 2017; Piper 2016;). Socio economic status such as educational attainment and labor market conditions are strongly related to time devoted to sleep as well (Antillon et al.,2014; Basner et al., 2007; Blachflower and Bryson, 2021; Bonke, 2015; Fischer et al., 2008; Greissl et al., 2022; Luckhaupt et al., 2010).

Sleep is a crucial and fundamental daily practice for all individuals, occupying a greater portion of time than any other single activity. Economists should focus on comprehending the distribution of time dedicated to sleep, given its significant repercussions on individual welfare and overall productivity. Sleep is a fundamental human activity that significantly influences cognitive function, emotional stability, and physical health. Sleep deprivation, on the other hand, leads to reduced cognitive performance, impaired judgment, increased likelihood of accidents, and various physical and mental health issues. In other words, how much we sleep can indeed be considered as an economic decision (Asgeirsdottir and Zoega, 2011). For instance; i) Individuals may choose to allocate more time to work or other activities instead of getting sufficient sleep, especially if they believe that the benefits of those activities outweigh the potential costs of sleep deprivation. ii) Economic factors influence how individuals prioritize their time, and this includes deciding how much time to dedicate to sleep versus other activities. iii) Economic pressures, such as job requirements or financial incentives, can lead individuals to work longer hours, leading to reduced sleep time. iv) Access to sleep-related services, such as sleep clinics or therapies, may be influenced by economic factors like income and insurance coverage, affecting the quality of sleep individuals can attain. v) Economic disparities can influence access to resources that impact sleep, such as living conditions, healthcare, and stress levels, all of which can affect sleep duration and quality.

Discussion above indicates the importance of economics point of view to time allocation to sleep. Economists should care about time allocation to sleep because it directly affects human capital, labor productivity, and healthcare costs. By investigating factors influencing sleep patterns, such as work schedules, technological disruptions, and socioeconomic disparities, economists can provide insights into policies and interventions that promote optimal sleep habits, ultimately contributing to improved quality of life, enhanced workforce efficiency, and more resilient economies. In this respect, my main aim in this study is to present a descriptive analysis on time allocation to sleep and its association with socio-economic factors in Turkey

by using 2014 Time Use Survey prepared by Turkish Statistical Institute (Turkstat). The outline of the paper is as follows: second section presents a brief literature review. Third section describes the data. Fourth section shows the results and fifth section concludes.

Literature Review

There is a large medical literature about sleep and its associations with health. The medical literature finds negative health consequence such as increased weight gain and obesity, diabetes, hypertension, depression and coronary heart disease (Antillon et al., 2014; Bin et al., 2012; Bonke, 2015; Zhai et al.,2015). On the other hand, there is very small "economics of sleep" literature despite its economic importance (Piper, 2016). The 'economics of sleep' literature treats the amount of sleep an individual has as a choice: individuals can choose how to split their day up between work, leisure, and sleep in an attempt to maximise utility (Piper, 2016). Economics literature try to reveal the relationship between time allocation to sleep and life satisfaction, socio-economic status and labor market conditions.

Basner et al. (2007) examine the association between sleep time to waking activities using American Tiime Use Survey (ATUS). Adjusted multiple linear regression models showed that the largest reciprocal relationship to sleep was found for work time, followed by travel time, which included commute time (Basner et al.,2007). Yoon et al., (2015) investigate characteristics (sociodemographic factors, lifestyle factors, psychological conditions, anthropometry, and health conditions) that could be related to short and/or long sleep duration among middle-aged and elderly Koreans. According to their results adverse behaviors and lifestyle factors including being unmarried, having low socioeconomic status, current smoking, not exercising, having irregular meals, and having poor psychosocial wellbeing experiencing frequent stress events, or having poor self-rated health all raised the odds of having an abnormal sleep duration (Yoon et al., 2015). Piper (2016) also examines the amount of sleep associated with maximum life satisfaction in Germany. The results indicate that the duration of sleep that is associated with maximal ceteris paribus life satisfaction is, on average, substantially higher than that which individuals actually have (Piper, 2016). In a similar study for Germany, Pagan (2017) tries to estimate the contribution of each hour of sleep to life satisfaction for people with and without disabilities. Results show a quadratic relationship between life satisfaction and the number of hours of sleep during workdays and weekends.

Antillon et al. (2014) investigate whether macroeconomic conditions such as unemployment are linked to sleep patterns in United States. They find that higher aggregate unemployment is associated with longer mean sleep duration (Antillon et al.,2014). In a comparable study, Bonke (2015) analyzes short and long sleep in Denmark for the period 1964-2009 and associations with employment and socio-economic status. According to their results the proportion of short sleepers increased significantly until the end of the 1980s, whereafter it decreased significantly. Further, increase in women's employment rates was associated with half the decrease in their sleep duration over the last 45 years (Bonke, 2015). In a recent study, Blanchflower and Bryson (2021) investigate the relationship between unemployment and sleep for United States over the period 2006-2019. They show that unemployed suffer more short and long sleep than the employed and are more likely to suffer from disturbed sleep. These are especially problematic for the long-term unemployed and for the jobless who say they are unable to work (Blanchflower and Bryson, 2021). Additionally, Greissl et al., (2022) study the differences in sleep behaviour between employed and unemployed individuals by using German cohorts aged between 41 and 64 years. Their results support prior findings that unemployment has a negative influence on sleep quality.

Although there are many studies on the relationship between labor market conditions and socio-economic status in Turkey (Eriş-Dereli,2021; Eriş-Dereli,2022; Karaoğlan and Okten, 2015; Tansel and Taşcı,2004;) and some epidemiologic studies on sleep time and sleep patterns

(Demir et al., 2015; Cırdı et al., 2022), to my knowledge there is no research on the relationship between time allocated to sleep and socioeconomic status in Turkey. In this respect, I believe my descriptive study would contribute Turkish literature significantly.

Data

The data is from 2014 Time Use Survey by Turkstat. The survey measures time allocation across a number of activities over a time frame in addition to information on a number of personal and socio-economic characteristics (Turkstat, 2016). Survey participants are instructed to record their activities within ten-minute intervals throughout a 24-hour time frame, encompassing both weekdays and weekends. The recording period begins at 4 am on the day preceding the activity log. All activities are collected both in workdays and weekends. Sum of the activities cannot exceed 24 hours. This survey entails participants documenting their daily activities in specified time intervals, providing insights into patterns of work, leisure, household chores, social interactions, and other engagements. The survey has information on market work (work and job search), non-market work (maintanence, shopping, home production, gardening), child care, leisure (watching tv, socializing, sports, hobbie, readin, sleepin, eatin, personal car, own medical care) and other work (education time, care for other and voluntary work). I focus on sleeping time in the dataset. My approach involves creating estimates of time usage based on the minutes per day that individuals report for their primary activities on the diary day. I achieve this by dividing these reported minutes by 60 in order to convert them into hours per day. In the study, I use continous average sleeping hours per day and categorical sleep time variable as well. Categorical sleep time is defined to show short and long sleep. Individuals who sleep 5 hours or shorter are short sleepers and who sleep 9 hours or more are long sleepers (Luckhaupt et al., 2010; Blanchflower and Bryson,2021).

The data also has information on demographic characteristics and socio-economic status. I define age in eight categories; 25-29, 30-34, 35-39, 40-44, 45-49, 55-59 and 60-64. Marital status has three categories; married, single and separated (both for divorced and widowed individuals). I use five education categories; no degree, jr.primary, sr.primary, high school and university. I define labor force status in four groups; employed, unemployed, neet(inactive) and student. Employment status has also four groups; wage earner, employer, self-employed, unpaid family worker. Individual income is not available in the dataset so I define household income in five categories; very low, low, middle, high, and very high. Health status has also five categories which are; very good, good, fair, poor and very poor. I use sample aged between 25 and 64 who are non-agricultural population. I also exclude retirees. Hence, my sample consists of 7610 males and 8059 females.

Results

Table 1 shows time allocation to sleep in hours per day. Table shows daily sleep hours both in workdays and weekends, both for males and females. According to the data, average sleeping hours for females in workdays are higher than males. For instance, females sleep 8.27 hours on average in workdays, while males sleep 8.06 hours per day on average. On the other hand, on average males sleep more than females in weekends.

Table 1 Time Allocated to Sleep (Daily hours)

	males	females
Sleep time (workdays)	8.06	8.27
Sleep time (weekends)	8.89	8.86
Number of observations	*7610*	*8059*

Source: Turksatat Time Use Survey 2014. Sleep time is in hours per day. Sample weights applied.

Table 2 presents time devoted to sleep according to demographic characteristics and socio-economic status. I present average daily sleeping hours both in workdays and weekends.

Sleeping hours increases with age both for males and females in workdays. On the other hand, average sleeping time decreases with age for both genders in weekends. Furthermore, across in all age categories, the mean duration of sleep for females on workdays are slightly higher than their male counterparts. Conversely, the average hours of sleep for females during weekends are lightly lower than males. Moreover, single individuals sleep more than married or separated counterparts both during workdays and weekends.

Table 2 Time Allocated to Sleep according to Demographic Characteristics and Socio Economic Status.

	Males		Females	
	Workday	Weekend	Workday	Weekend
Age				
25-34	8.01	9.11	8.28	9.04
35-44	7.90	8.87	8.13	8.87
45-54	8.07	8.80	8.26	8.78
55-64	8.38	8.71	8.52	8.69
Marital Status				
single	8.24	9.33	8.47	9.43
married	8.03	8.82	8.21	8.78
separated	8.01	8.84	8.65	9.10
Education				
no degree	8.68	9.05	8.57	8.84
jr. primary	8.18	8.81	8.26	8.74
sr. primary	7.99	8.78	8.21	8.86
high school	7.97	8.91	8.24	9.02
university	7.81	9.08	7.97	9.14
Labor status				
employed	7.82	8.79	7.86	8.71
unemployed	9.02	9.29	8.80	9.27
neet	9.02	9.29	8.47	8.92
student	8.76	9.89	8.25	8.94
Employment status				
wage earner	7.75	8.90	7.89	9.09
employer	7.85	8.76	7.54	8.32
self employed	7.99	8.46	7.90	8.33
unpaid family worker	8.05	8.51	7.79	7.99
Household income				
very low hh income	8.29	8.83	8.38	8.71
low hh income	8.17	8.78	8.37	8.85
middle hh income	7.98	8.88	8.27	8.87
high hh income	7.91	8.97	8.21	8.91
very high hh income	7.92	8.99	8.09	9.02
Health Status				
very good	7.76	8.86	8.06	8.93
good	7.99	8.83	8.24	8.89
fair	8.25	8.93	8.34	8.74
poor	8.77	9.43	8.51	8.86
very poor	9.62	9.77	9.22	9.64

Source: Turksatat Time Use Survey 2014. Sleep time is in hours per day. Sample weights applied.

Education is one of the most important socio-economic status indicators. First observation is that mean sleeping hours during workdays decreases with the increase of educational attainment for both genders. For example, in workdays males with no degrees sleep 8.68 hours per day on average and this number is 7.81 hours for males with university degrees. Similarly, mean sleeping hours for females with no degrees are 8.57 hours while it is 7.97 hours for females with university education. On the other hand, mean sleeping hours during weekends increases slightly with education level both for males and females. Next, I consider labor market indicators which are labor status and employment status. Employed males and females has the

shortest sleep durations both in workdays and weekends. Employed males sleep 7.82 hours on average, while their female counterparts sleep 7.86 hours. When I examine unemployed and neet individuals, I observe that mean sleeping hours are longer than the employed counterparts. Moreover, mean sleeping hours per day of unemployed and neet males are longer than females. According to employmet status, results show that wage earners have the shortest sleeping time on average with respect to employers, self employeds and unpaid family workers.

Income could also be an important correlate of sleep duration. However individual income is not available in the data set. Thus, I use household income as the income indicator. Results show that fall in mean sleeping hours with the increase in household income level. For instance, males(females) with very low household income level sleep 8.29(8.38) hours on average on workdays, whereas this number is 7.92(8.09) hours for males with very high household income level. Further, since both epidemiological and economcs literarure emphazise the adverse health outcomes of sleep deprivation, I use subjective health status as the health indicator. As the health status worsens, mean sleeping hours increases for both males and females during both workdays and weekends.

Table 3 shows distribution of sleep time during workdays with respect to average weekly market work and non-market work hours. By following Luckhaupt et al. (2010) and Blanchflower and Bryson (2021), I define short sleep if mean sleping hours is equal or less than 5 hours and long sleep if mean sleeping hours is equal or more than 9 hours. According to Table 3, first observation is that as average sleep hours increase, weekly market work hours significantly decrease both for males and females. On the other hand, despite the fall in non-market hours with respect to rise in mean sleep time, the decrease is not that profound as in market work hours.

Table 3: Self reported sleep duration by weekly market work and non-market work hours

sleep hours(workdays)	males		females	
	market work	non-market work	market work	non-market work
<5hrs	58.04	5.91	15.51	35.47
5hrs	49.88	5.29	14.73	35.93
6hrs	45.09	5.49	12.88	34.64
7hrs	43.33	5.17	14.74	32.14
8hrs	40.44	4.74	12.47	31.47
9hrs	33.00	5.28	9.55	31.25
10hrs	22.69	5.64	4.81	30.34
>10hrs	11.81	5.55	2.26	27.12

Source: Turkstat Time Use Survey 2014. Sleep time is in hours per day. Sample weights applied.

Graph 1 shows the mean daily sleeping hours (both workdays and weekends) according to age and gender. When I examine average sleeping hours during workdays, I observe that females sleep more than males in each age group. The gap beetween mean sleep time between males and females in workdays starts to get narrow after middle ages. On the other hand, mean sleeping hours during weekends are higher than workdays, however there is no significant difference among genders.

Graph 2 depicts mean sleeping hours according to gender, age and work status. Left panel shows mean sleeping hours of working (employed) invidiuals. Right panel draws the same picture for non-working (unemployed and neet) individuals. Graph 2 has some interesting features. First, mean sleeping time is lower for both working males and working females when compared to Graph 1. Second, as in Graph 1 working females sleep more than males on avarage both during workdays and weekends in every age category. Third, distribution of mean sleep

hours changes when non-working individuals are considered. Among non-working individuals, males sleep more than females both during workdays and weekends in each age group.
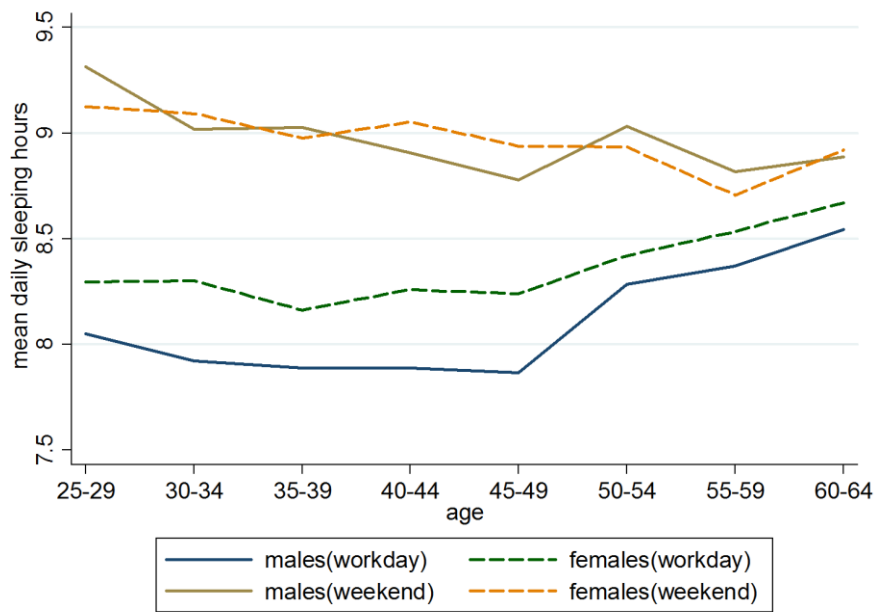
Source: Turkstat Time Use Survey 2014. Sleep time is in hours per day.

Sample weights applied.

Graph 1 Mean Daily Sleeping Hours According to Gender and Age

Source: Turkstat Time Use Survey 2014. Sleep time is in hours per day. Sample weights applied.

Graph 2 Mean Daily Sleeping Hours Accroding to Gender, Age and Work Status

Graph 3 presents mean daily sleeping hours according to gender, age and education level. Low education includes individuals with no degree, jr. primary, and sr.primary. High education category has individuals with high school and university degrees. The behaviour of mean sleeping hours of highly educated individuals is similar to Graph 1; females sleep more than males during workdays, and the difference is not that obvious when I look at weekends. On the other hand, average sleep time of low educated individuals does not show a systematic pattern for both genders.
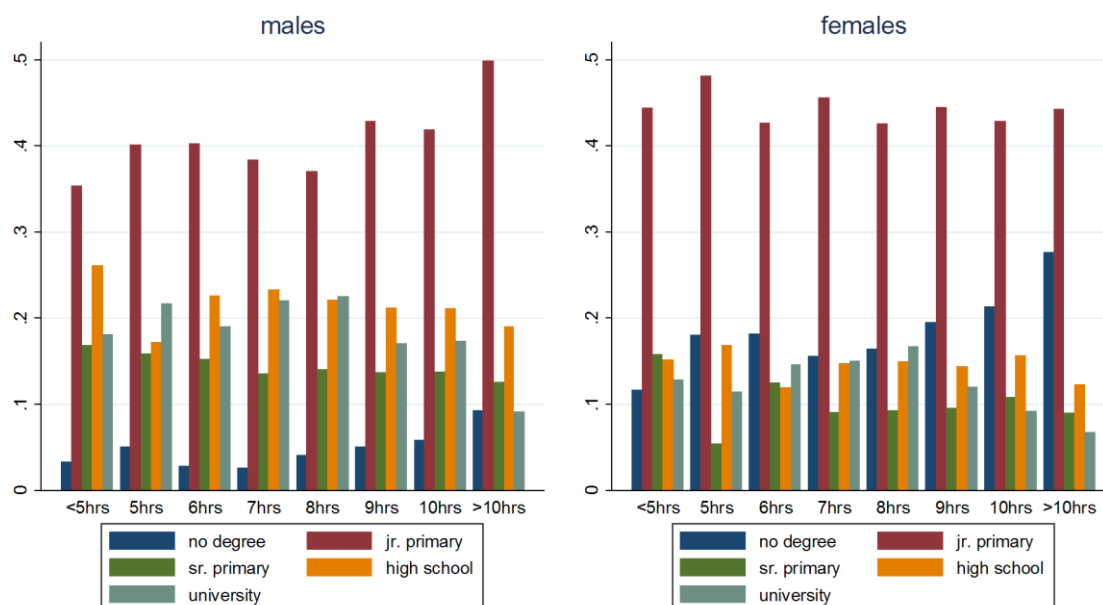
Source: Turkstat Time Use Survey 2014. Sleep time is in hours per day. Sample weights applied.

Graph 3 Mean Daily Sleeping Hours Accroding to Gender, Age and Education

One of the essential differences between males and females is the difference between market work hours and non-market work hours. Table 3 presented that males' market work hours are significantly higher than females' and the opposite is true when I considered non-market work hours. In this respect, Graph 4 presents distribution of mean daily sleeping hours and mean weekly market work hours according to age for males and females separetly. Graph 5 shows the same picture for weekly non-market work hours. Left axis is for mean daily sleeping hours and right axis is for mean weekly market work hours and non-market work hours recpectively. According to Graph 4 mean daily sleeping hours for females is higher than males and oppositely, mean weekly market work hours are higher for males. Additionally, the gap between market work hours and daily sleeping hours becomes narrower with the increase in age for males while, the gap widens with age for females. When I consider the relationship between sleep time and non-market work, the behaviour of the graphs is the opposite. Mean weekly non-market works hours is higher in each age categories for females. The gap between mean daily sleep hours and weekly non-market work hours widens with respect to age for males and gets narrow for females.

Graph 6 shows the distribution of hours of sleep duration by employment status for males and females separetly. The prevalance of employed individuals is the highest among males with the average of 7 hours of sleep per day. In other words, the overall prevelance of short sleep duration (6 hours or less) is the greatest for employed males and long sleep duration is the greatest for the neet males. On the other hand, the prevalance of neet individuals is the highest among females with the average of 8 hours of sleep per day.
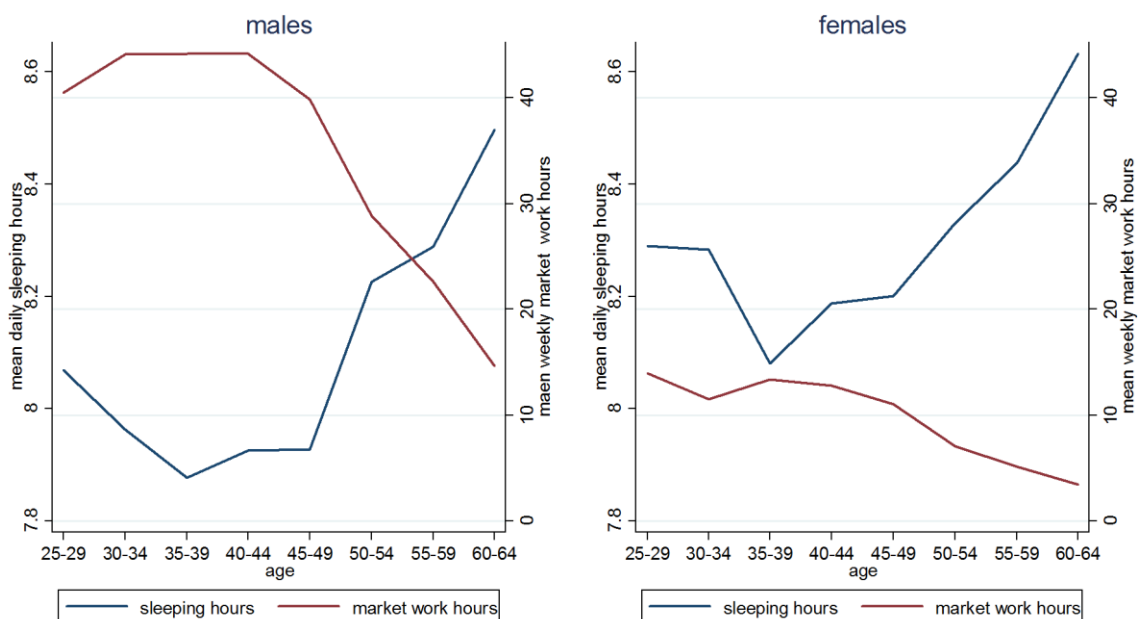
Source: Turkstat Time Use Survey 2014. Sleep time is in hours per day. Sample weights applied.

Graph 4 Time Allocated to Sleep and Market Work
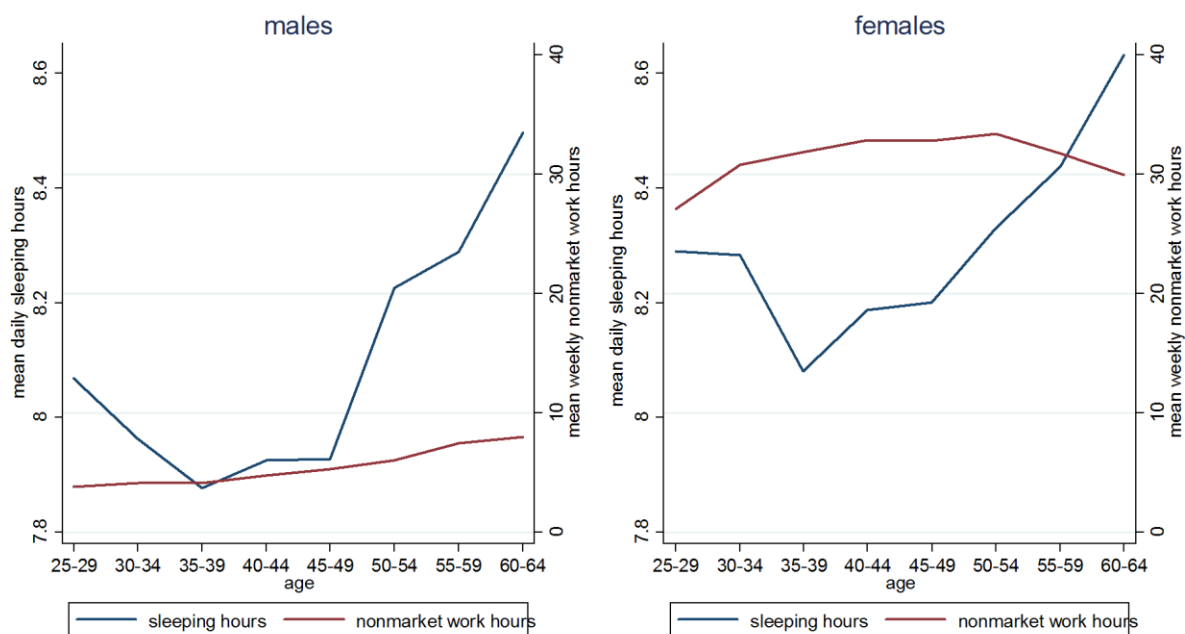
Source: Turkstat Time Use Survey 2014. Sleep time is in hours per day. Sample weights applied.

Graph 5 Time Allocated to Sleep and Non-market Work
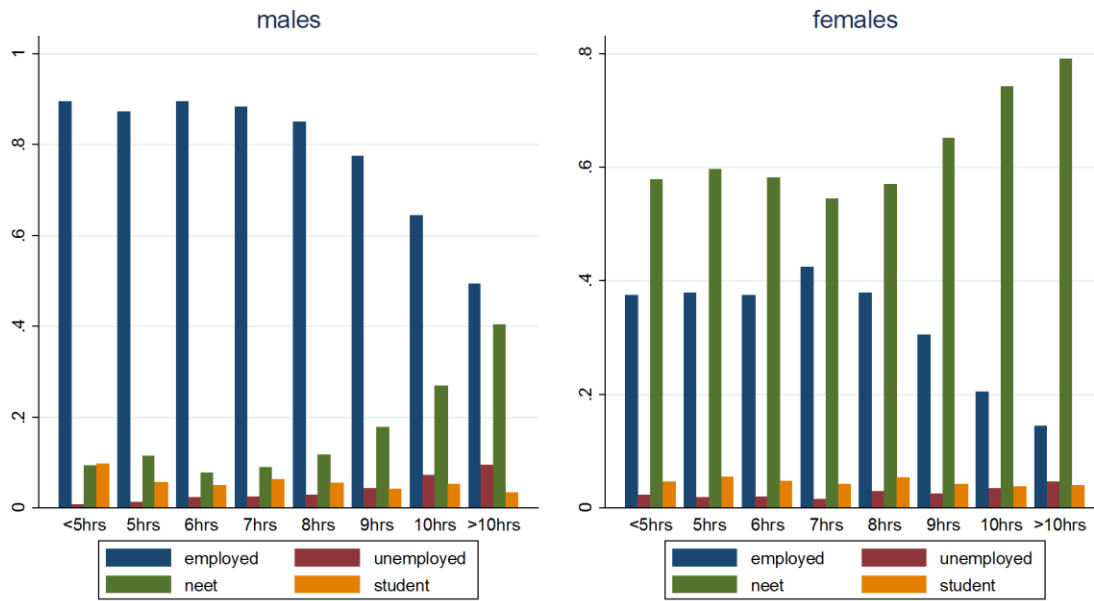
Source: Turkstat Time Use Survey 2014. Sleep time is in hours per day. Sample weights applied.

Graph 6 Time Allocated to Sleep by Employment Status

Conclusion

Sleep is a vital daily activity occupying a greater portion of time than any other activity. Although there are numerous studies on time allocated to market work and non-market work, studies examine the sleep durations and its relationship with economic outcomes are limited. The time devoted to sleep and its association with socio-economic status, especially labor market conditions, is crucial due to its profound impact on individual productivty, human capital development and overall economic performance. The duration and quality of sleep influence cognitive function, decision-making, and overall well-being, all of which are pivotal factors in an individual's labor market participation. Understanding the interplay between sleep patterns and labor market dynamics is essential for devising comprehensive policies that promote sustainable work environments, boost human capital accumulation, and ultimately foster healthier and more productive economies.

Due to the economic importance of sleep durations, main purpose of this study is to reveal a descriptive analysis on self reported sleep duration and its association with socio-economic status (age, marital status, education, employment status) in Turkey by using 2014 Time Use Survey by Turkstat. Main findings are as the following; i) mean daily sleep hours are higher for females both in workdays and weekends and females sleep more in each age category. ii) mean sleeping hours during workdays decreases with the increase of educational attainment and household income for both genders, iii) Employed males and females has the shortest sleep durations both in workdays and weekends. Conversely, neet individuals has the longest sleep durations. iv) the gap between market work hours and daily sleeping hours becomes narrower with the increase in age for males while, the gap widens with age for females. On the other hand, the gap between mean daily sleep hours and weekly non-market work hours widens with respect to age for males and gets narrow for females.

References

Aguiar, M. and Hurst, E. (2007) Measuring trends in leisure: the allocation of time over five decades. *The Quarterly Journal of Economics*, Vol. 122, No. 3, pp.969–1006.

Antillón, M., Lauderdale, D. S., & Mullahy, J. (2014). Sleep behavior and unemployment conditions. *Economics & Human Biology*, *14*, 22-32.

Asgeirsdottir, T. L., & Zoega, G. (2011). On the economics of sleeping. *Mind & Society*, *10*, 149-164.

Basner, M., Fomberstein, K. M., Razavi, F. M., Banks, S., William, J. H., Rosa, R. R., & Dinges, D. F. (2007). American time use survey: sleep time and its relationship to waking activities. *Sleep*, *30*(9), 1085-1095.

Becker, G.S. (1965) A theory of allocation of time. *The Economic Journal*, Vol. 75, No. 299, pp.493–517.

Bin, Y. S., Marshall, N. S., & Glozier, N. (2012). Secular trends in adult sleep duration: a systematic review. *Sleep medicine reviews*, *16*(3), 223-230.

Blanchflower, D. G., & Bryson, A. (2021). Unemployment and sleep: evidence from the United States and Europe. *Economics & Human Biology*, *43*, 101042.

Bonke, J. (2015). Trends in short and long sleep in Denmark from 1964 to 2009, and the associations with employment, SES (socioeconomic status) and BMI. *Sleep medicine*, *16*(3), 385-390.

Bopart, T. and Hgai, L.R. (2018) *Rising Inequality in Leisure*, CPER Discussion Paper, No. 12325.

Cırdı, G., Erdoğ Şahin, N., Ertürk Zararsız, G., İsmailoğulları, S., & Kondolot, M. E. D. A. (2022). Sleep Patterns of Infants and Effects of Sleep Training: Longitudinal Single Center Experience from Turkey. *Journal of Turkish Sleep Medicine*, *9*(2).

Demir, A. U., Ardic, S., Firat, H., Karadeniz, D., Aksu, M., Ucar, Z. Z., ... & TAPES Investigation Committee. (2015). Prevalence of sleep disorders in the Turkish adult population epidemiology of sleep study. *Sleep and Biological Rhythms*, *13*, 298-308.

Eriş-Dereli, B. (2021) Time-related underemployment in Turkish labor market. Murat Aydın (Ed.) in Global Agenda in Social Sciences (p.121-133). London: Ijopec Publication.

Eriş-Dereli, B. (2022) Socio-demographic characteristics and risk of automation in Turkish Labor Market. Faruk Kalay (Ed.) in Administrative and Economics Sciences Theory, Current Researches and New Trends (p.44-57). Cetinje-Montenegro:IVPE Publication.

Fischer, F. M., Nagai, R., & Teixeira, L. R. (2008). Explaining sleep duration in adolescents: the impact of socio-demographic and lifestyle factors and working status. *Chronobiology international*, *25*(2-3), 359-372.

Gimenez-Nadal, J.I. and Sevilla, A. (2012) Trends in time allocation: a cross-country analysis. *European Economic Review*, Vol. 56, No. 6, pp.1338–1359.

Greissl, S., Mergl, R., Sander, C., Hensch, T., Engel, C., & Hegerl, U. (2022). Is unemployment associated with inefficient sleep habits? A cohort study using objective sleep measurements. *Journal of Sleep Research*, *31*(3), e13516.

Hafner, M., Stepanek, M., Taylor, J., Troxel, W. M., & Van Stolk, C. (2017). Why sleep matters—the economic costs of insufficient sleep: a cross-country comparative analysis. *Rand health quarterly*, *6*(4).

Karaoglan, D., & Okten, C. (2015). Labor-force participation of married women in Turkey: a study of the added-worker effect and the discouraged-worker effect. *Emerging Markets Finance and Trade*, *51*(1), 274-290.

Luckhaupt, S. E., Tak, S., & Calvert, G. M. (2010). The prevalence of short sleep duration by industry and occupation in the National Health Interview Survey. *Sleep*, *33*(2), 149-159.

Pagan, R. (2017). Sleep duration, life satisfaction and disability. *Disability and health journal*, *10*(2), 334-343.

Piper, A. T. (2016). Sleep duration and life satisfaction. *International Review of Economics*, *63*, 305-325.

Tansel, A., & Tasci, H. M. (2004). Determinants of unemployment duration for men and women in Turkey. *Available at SSRN 512222*.

Yoon, H. S., Yang, J. J., Song, M., Lee, H. W., Han, S., Lee, S. A., ... & Kang, D. (2015). Correlates of self-reported sleep duration in middle-aged and elderly Koreans: from the Health Examinees Study. *PLoS One*, *10*(5), e0123510.

Zhai, L., Zhang, H., & Zhang, D. (2015). Sleep duration and depression among adults: A meta-analysis of prospective studies. *Depression and anxiety*, *32*(9), 664-670.

Economic Conditions During Covid-19 Pandemic in Turkey

Can MAVRUK[1]
Seda ŞENGÜL[2]
Fulya CENKSEVEN-ÖNDER[3]

Introduction

Covid-19 (C19) pandemic worldwide negatively affected economic conditions of individuals due to fear, infections and preventive measures against the risk of getting infected by the virus, and lockdown periods caused loss of jobs and income.

Women experienced harder times than men during the pandemic, which cost them more job loss, unpaid work leave, house workload and less working hours (Kalaylıoğlu, Öztürk & Eker, 2020).

On the demand side, consumption behaviors and habits of households were changed not only due to lockdowns and preventive measures (Güney & Sangün, 2021) but also due to fear of Covid 19 (Çakmaklı, Demiralp, Yeşiltaş, & Yıldırım, 2021). Fear of getting infected by the virus forced people to distance and social isolation so that most chose to stay home, cook and eat at home, shop online. Thus, fear of Covid-19 (FC19) scale (Ahorsu, Lin, Imani, Saffari, Griffiths & Pakpour, 2020) and change in expenditures are included in this study. Due to change in consumption behavior, change in income and expenditures whether decreased, did not change or increased are surveyed to assess their effects on the economic conditions.

The extent to which the pandemic effected economic status was also assessed. Based on the experiences of the pandemic, the responses are considered to be the best to reflect on economic conditions. In addition to individual economic conditions, the fate of the Turkish and World economies due to the pandemic were also surveyed to assess pandemic related economic inferences. It wasn't just the pandemic that negatively affected the economy, Ukrainian-Russian conflict and drought also contributed at the same time. Increasing energy and food prices dropped the power of purchase in Turkey. For this reason, income effect is also assessed.

Financial support was widely discussed in Turkish community during Covid 19 period. Turkish government aid and subsidies were put in place to partially compensate for the losses of employers, employees, farmers, tradesmen and craftsmen. Job loss due to C19 pandemic were considered as unpaid leave for the 17.04.2020-30.06.2021 period. The employers notified the Institution of Providing Jobs and Employees (İŞKUR) for cash fee support. The payments were 39.24 TL/day in 2020, 47.70 TL/day in January, February and March 2021 and 50 TL/day in April 2021 and thereafter (İşkur, 2023). Those qualified were also paid short-time working allowance for non-working days. Short-time working allowance amount; earnings of the insured subject to premium for the last 12 months were calculated taking into account 60% of the daily average gross earnings (Centel, 2020). Premiums and supports to farmers were announced as up to 275 TL/ton in grains and up to 975 TL/ton in legumes (Anadolu Agency,

[1] Dr., Niğde Ömer Halisdemir University, Niğde Vocational School of Social Sciences. ORCID: 0000-0002-4084-7447
[2] Prof. Dr., Çukurova University, Faculty of Economic and Administrative Sciences. ORCID: 0000-0002-5648-3270
[3] Prof. Dr., Çukurova University, Faculty of Education. ORCID: 0000-0001-9748-626X

2021). Another support program was social support which made three phase grants of 1000 TL each to those who need social support. Phase 1 and Phase 2 aids were made to people registered in the social welfare system without any application. These supports are provided by the ministry in each phase (Ulev and Yenice, 2022). Cash support for tradesmen and craftsmen who were adversely affected by the C19 outbreak were divided into two groups as 3000 TL and 5000 TL for one time only.

This study focuses on the effects of economic variables (income, expenditure, work status) on the economic conditions of individuals during C19 pandemic in Turkey.

Method

Çukurova University Ethics Committee approval for an on line survey was obtained in accordance with the decision date and number 30.07.2020-E.22238.

Data

506 adults participated in a cross-sectional survey in Turkey in March 2022. Table 1 indicates survey questions and response categories of demographic, socio-economic and covid-19 related variables.

Table 1. Variables of the Survey

Your age	Covariate (…Years Old)
Your gender	0=Female 1=Male
Marital status	1=Single, 2=Married, 3=Divorced or Widowed
Family size including yourself	Covariate (the number)
Your work status	1=Unemployed, 2=Employed, 3=Retired, 4=Lost my job due to Covid 19
How do you evaluate your economic condition?	1=Very good, 2=Good, 3=Moderate, 4=Poor, 5=Very poor
Total family income including yours (TL per month)?	TL/month
Total family expenditure including yours (TL per month)?	TL/month
Change in income and consumption expenditure in Covid 19 period?	1=Decreased, 2=Did not change, 3=Increased
Is there anybody infected with covid 19 in your family or close environment?	0=No, 1=Yes
When do you think the spread of covid 19 virus will end?	0=Dont know, 1=Spread will decrease, 2=In summer 3=In September, 4=Spread will never end
Your economic status will be affected due to covid 19 pandemic	1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree 5=Strongly agree
Turkey's economic status will be affected due to covid 19 pandemic	1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly agree
World economic status will be affected due to covid 19 pandemic	1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly agree

Dependent Variable

Dependent variable is economic condition. Participants were asked how they evaluate their economic condition. The answer choices were given as ordinal data: 1=very good, 2=good, 3=moderate, 4=poor, 5=very poor.

Independent Variables

Independent variables of this study include demographic and socio-economic variables such as age, gender, marital status, employment status, family size, change in income and expenditures during the pandemic and self-evaluation questions about C19 including FC19. Monthly family income and expenditures are covariates, change in income and consumption expenditures in C19 period and FC19 are ordinal categorical data and marital and employment status are multinom categorical data. Instead of using entire scale total score as covariate, "I am most afraid of coronavirus-19" item is used for FC19 because it is more powerful than other items to represent FC19.

Model

In this study, ordinal logistic regression model was used because dependent variable was ordinal. The model is prevalent in survey research in social sciences such as economics and well-being (Abreu, Siqueira, Cardoso & Caiaffa, 2008; Mavruk, Kıral & Kıral, 2021), health (Mavruk and Kıral, 2019), medical (Bender and Grouven, 1997), psychology (Stewart, Kamata, Miles, Grandoit, Mandelbaum, Quinn & Rabin, 2019; Moges, Adesina, Okunlola, Berhane & Akinyemi, 2021), education (Bozpolat, 2016).

Ordinal logistic regression model to estimate economic effects due to Covid-19 pandemic is

$$logit(y \geq j) = \log\left(\frac{P(y \geq j|x)}{P(y < j|x)}\right) = \alpha_j + \beta_1 x_1 + \beta_2 x_2 + \cdots + \beta_n x_n \quad j = 1 \ to \ 5$$

(1)

where
y represents economic conditions,
$P(y \geq j) = p_j + p_{j+1} + \cdots + p_5$ the estimated probability of higher economic conditions for a category of the explanatory variable,
$P(y < j) = p_1 + p_2 + \cdots + p_{j-1}$ the probability of lower economic conditions,

$\frac{P(y \geq j)}{P(y < j)}$ odds,

$\log\left(\frac{P(y \geq j)}{P(y < j)}\right)$ logit, log of odds or logistic regression (Bender and Grouven, 1997),

α_j denotes j-1 cutoff values,
β_1 log-odds ratio of $y \geq j$ when x_1 increases by one unit ceteris paribus (Murad, Fleischman, Sadetzki, Geyer & Freedman, 2003),
j is one of the categories of ordered dependent variable
n represents number of explanatory variables.
The first cut-off value α_1 between "very poor" and "poor" economic condition corresponds to logit[P(Y=1)]. For five categories of dependent variable (M=5), odds ratios are

$$P(Y = 1) = \frac{1}{1 + e^{-\alpha_1 + \Sigma \beta x}}$$

$$P(Y = j) = \frac{1}{1 + e^{-\alpha_{j-1} + \Sigma \beta x}} - \frac{1}{1 + e^{-\alpha_j + \Sigma \beta x}} \ \text{for } j=2, 3, 4$$

$$P(Y = 5) = 1 - [P(Y = 1) + P(Y = 2) + P(Y = 3) + P(Y = 4)] \ \text{(Williams, 2021)}$$

Odds ratio (OR) is given by (2) for a category j. The response is dichotomized for an event classified up to the jth category. OR is the odds of an individual in the higher categories compared to lower categories.

$$OR_j = \frac{odds(H)}{odds(L)} \qquad (2)$$

Proportional odds assumption refers to equality of log-odds ratio (McCullagh, 1980). Method of estimation is the maximum likelihood estimation for parameter estimates of logistic model. This estimation method is included in Stata. Generalized logit model can be used when the assumption is not met (Williams, 2006).

Since Stata uses the first levels of the categories of ordinal data of independent variables as reference by default, higher levels are interpreted relative to default reference. The variable with the highest number of observations should be chosen as reference category in case small number of observations come out of a survey (Williams, 2021). The case is same for multinom data of independent variables. For example, categories of employment status are 1.unemployed, 2.employed, 3.retired, 4. Lost job due to covid 19. In this case, default reference is unemployed and the other categories are interpreted relative to unemployed.

Ordinal logistic regression model (3) after proportional odds assumption met is used for the pandemic effects.

$EC^{*}_i = \alpha_j + \beta_1 INC_i + \beta_2 EXP_i + \beta_3 WORKSTATUS_i + \beta_4 COVIDFEAR_i + \beta_5 COVIDECON_i + e_i$
(3)

where

EC^{*} indicates unobserved latent continous variable for economic conditions
INC change in monthly family income during the pandemic
EXP change in food expenditures during the pandemic
WORKSTATUS change in work status due to the pandemic
COVIDFEAR fear of covid-19
COVIDECON change in economic conditions due to the pandemic
e_i latent error term with a logistic $\sim (0, \pi^2/3)$.

Descriptive Results

Mean age is 34.40. 33 percent is male and 67 percent is female. Mean family size of the sample (N=506) is 4,20 with a standart deviation of 1.64. About 38 percent reported a family size of four, 20 percent a size of five and 19 percent a size of three. Poor economic condition increases (12.50%-32%) as family size increases from three to six. 32 percent and 26 percent of the participants with a family size of six and two reported the poorest economic conditions. About 17 % and 21% of family size three and four reported poor or very poor economic status while 17% and 18% of them reported good or very good economic conditions.

About 89% of the participants reported C19 infection in family or in close environment. About 31% reported that they did not know when the spread of C19 would end, 33 percent believed that spread would decrease and 28.5 percent believed that C19 would never end. 66%, 79% and 78% thought C19 would negatively effect their economic status, Turkish economy and the world economy. 32.60 percent reported that they were most afraid of C19 while about 30.50% reported they were afraid of losing their lives due to C19.

About 13.64 percent reported a monthly family income less than the 2022 absolute minimum wage (4,253.40 TL). About 16.40 percent reported an increase in monthly income and consumption expenditure during C19 pandemic whereas 37.50 percent reported a decrease and 46 percent no change.

Only four people (1 percent) reported loss of job due to the pandemic, 36 percent reported no job, 60 percent working and 12 percent retired.

Table 2 shows descriptive summary statistics for economic status and family expenditures in TL. Economic status is reported as moderate (neither poor nor good). Mean monthly family income was 12577 and mean family expenditure was 11757 which shows no significant savings on average.

Table 2. Descriptions

Variables	N	mean	sd	min	max
Sex (Woman=0, Men=1)	506	0.33	0.47	0	1
Marital status	506	1.59	0.58	1	3
Family size	506	4.20	1.64	1	12
Employment status	506	1.68	0.56	1	4
Economic Status	506	3.10	0.785	1	5
Monthly family income	506	12577	10403	1000	100000
Monthly family expenditure	506	11757	11713	1000	95000
Fear of Covid-19	506	2.84	1.35	1	5
Covid infection in family or close environment (0=no, 1=yes)	506	0.89	0.31	0	1
Monthly food expenditure	506	3731	3910	500	50000

Income and Expenditures in the Covid 19 Period

Considering a min of 1 and max of 3, mean monthly income below 2 indicates a decrease in income. The highest increase is in energy (electricity, natural gas, propane, coal, woods etc) expenditures with a mean of 2.76 followed by personal care (soap, shampoo, shave, cologne, deodorant) expenditures with a mean of 2.63. Table 3 shows that the change in monthly income has a mean of 1.79, which indicates that income decreased during C19 pandemic.

Table 3. Descriptions of C19 Related Change in Income And Expenditures

Variable	Observation	Mean	Std dev	Min	Max
Monthly income	506	1.79	0.704	1	3
Food expenditure	506	2.47	0.758	1	3
Meat and fish	506	1.90	0.838	1	3
Bread and grain	506	2.37	0.709	1	3
Milk, cheese and eggs	506	2.19	0.768	1	3
Animal fat and vegetable oil	506	2.01	0.751	1	3
Vegetable and fruit	506	2.26	0.784	1	3
Jam, honey, chocolate, sweet	506	2.02	0.787	1	3
Sugar	506	1.96	0.722	1	3
Nonalcoholic beverages	506	2.02	0.702	1	3
Alcoholic drinks	506	1.94	0.660	1	3
Tobacco	506	2.00	0.683	1	3
Food expenditure outside (hotel, restaurants etc)	506	1.59	0.747	1	3
Homemade bread and yoghurt	506	2.37	0.711	1	3

Health expenditure	506	2.37	0.756	1	3
Housing expenditure	506	2.35	0.650	1	3
Energy expenditure	506	2.76	0.542	1	3
Personal care expenditure	506	2.63	0.648	1	3
Dishes and laundry detergent, matches, pegs	506	2.62	0.656	1	3
Socket, battery, holder, screwdriver, hammer, bulb, cornice	506	2.23	0.645	1	3
Washing machine, tv, dishwasher, oven, refrigrator, ac, iron	506	2.37	0.663	1	3
Kitchen utensils, glassware etc	506	2.08	0.641	1	3
Home furniture	506	2.08	0.608	1	3
Pillow, quilt, tulle curtain duvet cover, bed sheet, towel	506	2.17	0.638	1	3

Table 4 shows the change in income and expenditures during C19 pandemic. The highest decrease is reported as 56.50 percent in food expenses outside the home. The highest no change is 62.50 percent in home furniture expenditures followed by 56.50 percent pillow, quilt, tulle curtain duvet cover, bed sheet, towel expenditures. Participants reported 81.40 percent increase in energy expenditures, 72 percent increase in in personal care expenditure, 71.50 percent in dishes and laundry detergents and 63 percent increase in food expenditures. Akdemir, Kougnigan, Keskin, Açıksarı & Miassi (2020) reported that 79 percent of families noted an increase in the food budget during the pandemic period compared to before pandemic. Over 100 percent increase in bread and cereal products, vitamin supplements, food or products strengthening the immune system and dairy products was observed.

Table 4.Percent Change in Income And Expenditures During C19

	Decreased	Did not change	Increased
Monthly income	37.6	46.0	16.4
Food Expenditure	16.2	21	63
Meat and fish	40.7	28.9	30.4
Bread and grains	13.4	36.4	50.2
Milk, cheese and eggs	21.7	37.6	40.7
Animal fat and vegetable oil	27.7	43.7	28.6
Vegetable and fruit	21.0	31.8	47.2
Jam, honey and chocolate	30.1	38.1	31.8
Sugar	28.3	47.8	23.9
Nonalcoholic drinks	23.5	50.8	25.7
Alcoholic drinks	24.9	56.1	19.0
Tobacco	23.1	53.4	23.5
Food expenses outside the home	56.5	27.7	15.8
Homemade bread and yoghurt	13.6	36.0	50.4
Health Expenditure	16.8	29	54.2
Housing and rent	9.7	45.3	45
Energy Exp	5.5	13	81.4
Personal Care Exp	9.3	18.6	72.1
Dishes and laundry detergent, matches, pegs	9.7	18.8	71.5
Socket, battery, holder, screwdriver, hammer, bulb, cornice	12.1	53.4	34.6
Washing machine, tv, dishwasher, oven, refrigrator, ac, iron	10.3	42.3	47.4

Kitchen utensils, glassware etc.	16.6	58.3	25.1
Home furniture	14.8	62.5	22.7
Pillow, quilt, tulle curtain duvet cover, bed sheet, towel	13.2	56.5	30.2

Table 5 shows correlations at five percent significance between economic status and explanatory variables. Recall that insignificance of a correlation does not necessarily imply parameter insignificance of all categories of an explanatory variable, and vice versa. Thus, to include only explanatory variables with significant correlations in a regression model can be misleading. For an explanatory variable to be included in the model, proportional odds assumptions should be met.

Table 5. Correlations Between Economic Conditions And Explanatory Variables

	1	2	3	4	5	6	7	8	9
1.Economic Status	1.000								
2.Sex	0.064	1.000							
3.Marital Status	-0.045	0.043	1.000						
4.Number of people in family	0,038	0.043	-0.35*	1.000					
5.Employment status	0.019	0.090*	0.550*	-0.27*	1.000				
6.Family monthly income	-0.302*	0.083	0.392*	-0.058	0.419*	1.000			
7.Family monthly expenditure	-0.278*	0.101*	0.405*	-0.072	0.417*	0.86*	1.000		
8.Future economic status	0.106*	0.036	-0.10*	0.134*	-0.114*	-0.04	0.03	1.000	
9.FC19	0.155*	-0.214*	-0.045	0.014	0.018	-0.164*	-0.096*	0.211*	1.000

$*p<.05$

Model Estimation Results

When FC19 and change in all work status, monthly income, food expenditure were included as explanatory variables in "omodel logit...", likelihood-ratio test indicated $chi^2(12)$ = 17.8 and Prob > chi^2 = 0.12. The probability greater than 0.05 indicated that proportional odds assumption was not violated. Thus, the ordered logistic was run which revealed the following results. The odds of being in poor economic conditions for males is about 60 percent higher than females. Increase in monthly family income increased the probability of being in good economic conditions by 17 percentage points (pp) on average. One unit increase in monthly family income decreased the odds of being in poor economic status by about 20 percent. Those who reported C19 and stongly affected economic conditions relative to not affected increased probability of being in poor or very poor economic conditions by 27 pp on average. The effect of FC19 on economic conditions was statistically significant, but not strong (OR=1.04, p<.01). Since the self reported number of job loss was small, work status was not significant to explain economic conditions. However, the importance of job loss due to covid-19 is trivial across C19 related studies. The odds of poor economic conditions was seven times higher for job loss vs not working. Job loss due to C19 relative to being unemployed decreased probability of being in good economic conditions by 16.90 pp on average and increased probability of being in poor economic condition by 21 pp on average. The negative effects were lower, 11.30 pp, on economic state of the retired persons relative to unemployed persons. Even working persons vs not working reported poorer economic status. Working during C19 pandemic vs not working increased probability of being in poor or very poor economic conditions by 11 pp on average.

Conclusion

This study investigated C19 related economic effects on individuals in Turkey. The effects of change in income and expenditures and FC19 were significant on economic conditions. C19 preventive measures most increased energy, personal care and washing and dish detergant expenditures. High rates of change in income and expenditures were observed. This was in line with the findings of Güney & Sangün (2021). The highest significant change was observed in bread and grain expenditure. Income loss increased poor economic conditions. Those who lost their jobs got the worst hit compared to other employment status. Their poor economic condition was substantially higher than non-working persons. Working persons also reported poorer economic conditions than non-working persons. This can be explained by preventive measures and increasing living cost due to fear of infecting relatives and friends. The males were in substantially poorer economic conditions than females, which was contrary to the findings of Kalaylıoğlu, Öztürk & Eker (2020). The FC19 is negatively reflected on economic conditions by decreasing income. This was in line with Aksoy, Abiç, Değirmenci & Yılmaz (2021). Consequently, C19 pandemic worsened economic conditions. Considering only monthly rents of small businesses to be substantially greater than allowances and cash support, pandemic funding was insufficient to make a life or run the businesses. The allowances and supports should have been increased to cover increasing life cost. For future studies, economic conditions of the 2023 earthquake victims can be investigated.

This study was presented in III. International Istanbul Current Scientific Research Congress in February 8-9, 2023. https://www.izdas.org/istanbul

References

Abreu, M. N. S., Siqueira, A. L., Cardoso, C. S. & Caiaffa, W. T. (2008). Ordinal logistic regression models: application in quality of life studies. *Cadernos de Saúde Pública, 24*(4), S581-S591.

Akdemir, Ş., Kougnigan, E., Keskin, F., Açıksarı, Y. & Miassi, Y. (2020). Effects of Covid-19 on food consumption habits in Turkey. *International Conference on Covid-19 Studies*, June 21-23 2020, Ankara.

Aksoy, A., Abiç, A., Değirmenci, F. & Yılmaz, D. V. (2021). The relationship between quality of life and fear of Turkish individuals during the COVID-19 pandemic: A cross-sectional study. *Archives of Psychiatric Nursing, 35*(5), 472-478.

Anadolu Agency (2021). Support for tradesmen and craftsmen who were adversely affected by the Covid-19 epidemic continues to increase. Retrieved from https://www.aa.com.tr/tr/ekonomi/kovid-19-salginindan-olumsuz-etkilenen-esnaf-ve-sanatkarlara-yonelik-destekler-artarak-devam-ediyor/2245421# on 20/08/2023.

Bender, R. & Grouven, U. (1997). Ordinal logistic regression in medical research. *Journal of the Royal College of Physicians of London, 31*(5), 546-551.

Bozpolat, E. (2016). Investigation of the self-regulated learning strategies of students from the Faculty of Education using ordinal logistic regression analysis. *Educational Sciences: Theory and Practice, 16*(1), 301-318.

Centel, T. (2020). *Turkish social law*. Switzerland: Springer Cham.

Çakmaklı, C., Demiralp, S., Yeşiltaş, S. & Yıldırım, M. A. (2021). *An evaluation of the Turkish economy during COVID-19.* Centre For Applied Turkey Studies (Cats), Working Paper No. 01. Retrieved from https://www.swp-berlin.org/publications/products/arbeitspapiere/CATS__Working_Paper_Nr_1_2021_Cakmakli_Demiralp_Yesiltas_Yildirim.pdf on 10/08/2023.

Çakmaklı, C., Demiralp, S., Kalemli-Ozcan., Yeşiltaş, S. & Yıldırım, M. A. (2020). COVID-19 and emerging markets: The case of Turkey, Wp, No. 2011, *Koç University-TUSIAD Economic Research Forum (ERF)*, Istanbul.

Güney, O. I. & Sangün, L. (2021). How Covid-19 affects individuals' food consumption behavior: A consumer survey on attitudes and habits in Turkey. *British Food Journal, 123*(7), 2307-2320.

İşkur (2023). *Covid-19 Pandemic Cash Fee Support*. Retrieved from https://www.iskur.gov.tr/is-arayan/issizlik-sigortasi/nakdi-ucret-destegi-pandemi/#:~:text=Koronavir%C3%BCs%20(Covid%2D19)%20salg%C4%B1n%C4%B1n%C4%B1n,ve%20%C4%B0%C5%9EKUR%20taraf%C4%B1ndan%20yap%C4%B1lan%20%C3%B6demedir on 25/08/2023.

Kalaylıoğlu, Y., Öztürk, A. M. & Bingüler Eker, G. (2020). *The economic and social impact of*

COVID-19 on women and men. Rapid Gender Assessment of COVID-19 implications in Turkey. Retrieved from https://eca.unwomen.org/sites/default/files/Field%20Office%20ECA/Attachments/Publications/2020/06/Rapid%20Gender%20Assessment%20Report%20Turkey.pdf on 10/07/2023.

Mavruk, C. & Kıral, G. (2019). *Subjective efects over health status*. In T. Çürük (Ed.), Academics and Administrative (pp. 15–32). Ankara: Academician Publishing House.

Mavruk, C., Kıral, E. and Kıral, G. (2021). Spatial effects over time-framed happiness. *J Happiness Stud., 22*, 517-554. Doi.org/10.1007/s10902-020-00239-3.

McCullagh, P. (1980). Regression models for ordinal data. *Journal of the Royal Statistical Society. Series B (Methodological), 42*(2), 109-142.

Moges, N. A., Adesina, O. A., Okunlola, M. A., Berhane, Y., Akinyemi, J. O. (2021). Psychological distress and its correlates among newly diagnosed people living with HIV in Northwest Ethiopia: Ordinal logistic regression analyses. *Infectious Diseases: Research and Treatment, 14*, 1-10.

Murad, H., Fleischman, A., Sadetzki, S., Geyer, O., & Freedman, L. S. (2003). Small samples and ordered logistic regression: Does it Help to Collapse Categories of Outcome? *The American Statistician, 57*(3), 155–160.

Stewart, G., Kamata, A., Miles, R., Grandoit, E., Mandelbaum, F., Quinn, C. & Rabin, L.. (2019). Predicting mental health help seeking orientations among diverse Undergraduates: An ordinal logistic regression analysis. *Journal of Affective Disorders, 257*, 271-280.

Ülev, S. & Yenice, A. C. (2022). Pandemi döneminde uygulanan sosyal destek programı üzerine bir durum çalışması: Sakarya ili örneği. *Toplum ve Sosyal Hizmet Dergisi, 33*(2), 359-385.

Williams, R. (2006). Generalized ordered logit/partial proportional odds models for ordinal dependent variables. *The Stata Journal, 6*(1), 58-82. Doi:10.1177/1536867X0600600104

Williams, R. (2021). *Ordered Logit Models – Basic & intermediate topics*. Retrieved from https://www3.nd.edu/~rwilliam/stats3/Ologit01.pdf on 05/07/2023.

The Greek-Turkish Relations and the Greek Minority in Turkey: A Historical Analysis (1923-1974)

Duygu Öztürk[1]

Introduction

From the establishment of the Republic of Turkey, the issue of Greek minority and the Patriarchate has always been one of the most important issues particularly until the midst of 1970s both in domestic politics and in bilateral relations between Greece and Turkey. The Greek community in Turkey not only affected by policies to create a 'national' and homogenous nation, but also by bilateral relations between Greece and Turkey and the Cyprus issue. This study, examines how the lives of Greek community in Turkey, namely in Istanbul, and Imbros and Tenedos islands, were affected by the state of relations between Greece and Turkey. It is seen that when there were comparatively good relations between the two neighbors, the Greek minority enjoyed better conditions of life and when there were crises, the Greek minority was paying the bill with increased restrictions and violations of their recognized rights. Moreover, during the Cyprus crisis from 1955 to 1974, the Greek community was also instrumentalized to make Greece move as Turkey wished for. However, even though Turkey did not reach the result that it favored in Cyprus, the harsh policies on the Greek minority melted down their population significantly in the process either by forced expulsions or 'voluntary' leaves.

The subject is studied under three subtitles. First of all, the compulsory exchange of population is explained to display the legal basis of the Greek minority who were allowed to stay in their home countries after Lausanne Treaty was signed. In the second part, how Greek minority was affected by the bilateral relations between Greece and Turkey during the period from 1923 to 1950 was examined. And in the last part, the period between 1955 and 1974 was examined with a particular focus on the impact of Cyprus issue on the lives of the Greek minority in Turkey and the Patriarchate. This study follows qualitative research methods to have a better understanding of the subject. It makes a historical analysis on how Greek minority's live had changed in the time period from 1923 to 1974 under the impact of bilateral relations between Greece and Turkey.

The Historical Background

The Exchange of Populations

From the very beginning of the Lausanne Peace Conference, Turkey was in favor of a population exchange between Greece and Turkey. This view was mainly related to the will of homogenizing the population of the newly established nation-state. At the time, Greek Orthodox people were the most crowded non-Turkish and non-Muslim population within the boundaries of the newly formed nation. An exchange of populations with Greece was seen a practical solution. It would not only homogenize the population but also decrease the possibility of issues that might have arisen in future due to existence of ethnic minorities. On the side of Greece, the situation was not very much different. Although both Greece and Turkey were in favor of a population exchange, there are different views about who brought the issue on the

[1] Assist. Prof., Istanbul Medipol University School of Humanities and Social Sciences, Department of Political Science and International Relations.

table at Lausanne Conference. According to one account, before Lausanne Peace Conference, the Greeks mentioned about a population exchange with Turkey to Fritjof Nansen who was the League of Nations High Commissioner for Refugees and holding talks with Greece and Turkey (Barutciski 2003: 26). However, there are also sources that argue it was Turkey to raise the idea of population exchange in European capitals before Turkish War of Independence ended (Bozdağlıoğlu, 2014: 14). There is a third view which argues that the idea of population exchange was brought by the Allies to the negotiation table. Dr. Nansen states that before meeting Greece and Turkey, they received a call for a population exchange from the representatives of the Allies in Istanbul (Kayam, 1993: 586). There are also studies that point out Dr. Nansen as the architecture of the idea of population exchange (Çolakoğlu, 2020: 485). No matter who first came up with the idea of exchange of populations, all parties who signed the convention hold responsibility for it.

The agreement for the exchange of populations between Greece and Turkey was not the first of its kind in this geography. Previously, at the end of the Balkan Wars in 1913, the Ottoman Empire signed with Bulgaria a population exchange agreement. A Similar agreement was also signed between the Ottoman Empire and Greece in 1919. In both agreements, the states decided on an exchange of populations based on voluntary principle. The main feature that made the agreement for population exchange between Greece and Turkey in 1923 unique and distinguished it from other similar agreements was the fact that the exchange of populations was based on the principle of 'compulsory' exchange. It is argued that it was first İsmet İnönü, head of the Turkish delegation, who pronounced in Lausanne a compulsory population exchange including the Greeks living in Istanbul (Fırat, 2001: 330). Eleftherios Venizelos, on the other hand, favored a voluntary population exchange at the beginning. This was mainly because of the fact that Greece already had a migration about one-fourth of its population from Asia Minor because of the war (Fırat, 2001: 330) and he did not want to face a new wave of large migration flow which would increase incrementally existing economic and social problems including housing and settlement. The exchange of populations was discussed in depth in the relevant sub-commission and parties reached an agreement six months before signing Lausanne Treaty.

The compulsory population exchange between Greece and Turkey was the first population exchange agreement that was legally regulated in such a comprehensive and detailed manner (Çolakoğlu 2020, 484). With the "Convention on the Exchange of Populations" which was signed on 30 January 1923, Greece and Turkey legalized the compulsory population exchange among themselves. The convention identified who were to be included and exempted in the population exchange, and the conditions for transferring property and compensation (Hirschon 2003, 7). According to the Convention, there would be a population exchange of Turkish nationals of the Greek Orthodox religion living in Turkish territory and of Greek nationals of the Moslem religion living in Greek territory (Article 1). It exempted two specific populations from the exchange, who are also called *etablis*. The Greek inhabitants of Istanbul who were already settled before 30 October 1918 within the areas defined by the law of 1912 and the Moslem inhabitants of Western Trace who were settled down in the region to the east of the frontier line laid down in 1918 by the Treaty of Bucharest (Article 2). After it is accepted in Lausanne that *Tenedos* (Bozacaada) and *İmroz* (Gökçeaada) belong to Turkey, the inhabitants of the two islands were also exempted from exchange similar to Greek *etabli* of Istanbul.

The convention defined the process of migration. Accordingly, migrants were free to take as much movable property with them as they wish. For the goods they left behind, they would receive goods of the same value and quality in the country of destination. The Convention stated establishment of a Mixed 'Commission' that would be responsible for the supervision of the

migration and the liquidation of the movable and immovable property of migrants. Although it had very detailed provisions to manage the whole migration process and prevent loss of rights, there were many problems and significant losses of rights in practice. Along with financial losses and difficulties, the compulsory population exchange created for the next generations of people a traumatic legacy rooted in identity issues.

The Greece- Turkey Relations and the Greek Minority in Turkey: 1920-1950 Period

It is estimated that the population of Greeks living in Anatolia between 1910 and 1912 was around 1,780,000 (Pentzopoulos, 2002: 65). The population of Greeks living in Istanbul between those dates were around 250,000 (Pentzopoulos, 2002: 31-32). Under war conditions, the population of Greeks living in Istanbul changed from one time to another. According to British sources, the population of Greek people living in Istanbul in 1914 was around 300,000 and it increased to 400,000 by 1922 as the Greek army were approaching towards Central Anatolia (Alexandris, 1983: 96). As the Greeks started to draw back in the summer of 1922, most of the Greeks left Anatolia with the Greek army mainly for security reasons. That is why, when Greece and Turkey decided on a compulsory exchange of populations many Greeks living in Anatolia had already left. When the convention was signed, there were approximately 110,000 Greeks living in Istanbul who were exempted from population exchange (Oran, 1993: 99). In addition to this population, after the decision about İmbros and Tenedos made, the total number of Greek Orthodox people who were allowed to stay in their lands and exempted from population reached about 120,000.

However, in practice the exchange of population was not as smooth as it was planned and organized in Lausanne. Significant problems arose from the ambiguity of the definition of *etablis and* compensation of goods of migrants. Greece and Turkey had different interpretations about *etablis* of Istanbul. Greeks were interpreting the relevant article of the convention in a way to leave in Istanbul as many Greeks as possible while Turkey was trying to do just the opposite way (Fırat 2001: 339). The *etablis* issue significantly affected the lives of Greeks in Istanbul, many of whom were involved in trade and business. Because of the uncertainty, they could not obtain credits or loans, nor could they sell their properties (Alexandris, 1983: 140). The issue of *etablis* was settled down with the signing of the Ankara Convention on 10 June 1930. Although the Lausanne Treaty guaranteed fundamental human rights of minorities, and their rights as equal citizens of the Republic of Turkish, the Turkification policies of the 1920s negatively affected the social and economic conditions of Greek inhabitants of Turkey. Turkish state's efforts to develop a national economy through creation of a bourgeoisie class from Muslim Turks (Alexandris, 1983: 106), increased the pressure on the lives of Greeks of Istanbul. Foreign companies which were mostly employing Greeks were forced to employ Muslims and it was made compulsory in 1926 for all companies to keep all kinds of their records, contacts, correspondences, calculations in Turkish (Fırat, 2001: 337). Moreover, a legal amendment was made in the same year to define who can become a public servant. Accordingly, in order to become a public servant, the law emphasized that one has to be 'Turk' but did not state Turkish citizenship (Fırat, 2001: 336). This law stayed in force until 1965. The special self-administration privileges recognized in the Lausanne Treaty for Imbros and Tenedos never applied (Oran, 1993: 102). Furthermore, the rights of Greeks to have education in their mother language was denied in 1927 (Oran, 1993: 102).

The general atmosphere of the 1930s significantly different from the atmosphere of the 1920s. The Greek-Turkish relations during the 1930s were wrapped with positive atmosphere and defined with friendship and peace. This change was mainly caused by external developments. The 1930s saw emergence of revisionist states in Europe who were not satisfied with the outcomes of the World War I. This situation was threatening both Greece and Turkey which had been fighting in wars for long years and had newly established their nation-states.

Instead of involving in further wars, both states were favoring continuation of the status-quo and focusing domestic issues mainly rebuilding their economies and societies. Thus, the external threats brought Greece and Turkey closer by creating an atmosphere to develop their bilateral relations. In 1930, the two countries economic, political, and military agreements to deepen the friendship in their relations. The reconciliation in the bilateral relations had positive impacts on the lives of Greeks living in Turkey. The Commercial Convention was signed in 1930 between Greece and Turkey. The treaty made it possible for Greek entrepreneurs to establish companies and factories, have properties and leave in Turkey (Fırat, 2001, 349). In practice, the treaty meant that Turkey could gain back the capital and skilled labor which were lost as a result of compulsory exchange of populations. On the side of Greece, it was to create solutions for the unemployment issue. After the treaty, many Greeks with Greek nationals moved to Turkey with work and residence permits. The political relations and cooperation between Greece and Turkey were deepened in 1933 with the signing of an agreement which guaranteed the defense of their territories against the attack of a third-party increasing cooperation in international issues. The reconciliation between Greece and Turkey also affected the relations in the wider neighborhood in the Balkans. In 1934, the Balkan Pact was signed between Greece, Turkey, Yugoslavia, and Romania. With the pact, the signatory states recognized that their borders were mutually guaranteed; they would negotiate before taking an action in the events that might have impaired the interests set forth in the agreement, and they would not engage in any political action against any other Balkan country without the consent of other parties.

Despite the fact that the reconciliation in the bilateral state to state relations between Greece and Turkey formed the appropriate framework for improvements in the lives of Greeks in Turkey, policies to underline the 'Turkishness' of the nation had negative impacts on their live as on the lives of other non-Muslim minorities in the country. There was pressure in 1935 on non-Turkish minorities to adopt surnames that sound like Turkish (Alexandris, 1983: 183). The 'Citizen! Speak Turkish!' campaigns, too, increased the public pressure on minorities and made them feel unsecure. Moreover, the global economic depression, economic difficulties at home strengthened the hands of Turkish state to introduce a regulation that reserved a wide range of professions for Turkish nationals. Professions such as chemists, dentists, lawyers, surgeons, engineers, some handicrafts, and small trades were reserved for Turkish nationals.

Starting at the end of 1933, the decision affected the life of the Greek community, a part of which did not hold Turkish nationals and well represented in those professions. According to 1927 census, there were 26,431 Greeks with Greek nationals living in Istanbul (Aktar, 1996:11). After enactment of the law 9,000 Greek nationals left Istanbul and migrated to Greece (Fırat, 2001: 349). In 1935, the population of Greek nationals living in Istanbul was estimated to be 17,642 (Alexandris, 1983: 185). As there were marriages among Greeks with Greek and Turkish nationals, many Greeks with Turkish nationals had to move to keep their families together. Greeks' population would continue to melt down during the Cyprus Crisis in the 1960s.

The break of the Second World War created totally different conditions for both countries. While Turkey could keep its non-belligerent situation, Greece was occupied by Germans, Italians, and Bulgarians which was followed by a civil war in the country whose effects are to sustain till contemporary politics. Increasing economic problems and the Second World War conditions extended the détente in the bilateral relations between Greece and Turkey. This situation had reflections on the lives of the Greek minority at that time. In 1949, the law regulating the management of the minority foundations was amended. Accordingly, minorities were allowed to elect the head of their institutions instead of appointments from the government. Moreover, the 5 percent tax, *mukataa*, collected from minority institutions was

lifted. Steps were also taken regarding the education of Greek children. In 1951, a culture agreement was signed between Greece and Turkey to exchange teachers for minority schools. Thus, this meant that for the education of minorities at schools in the neighbor country, they would be able to send teachers from their nationals. Furthermore, an initiative for the purification of school text-books from mutual defamation of both nations was started (Oran, 1993: 103). With the liberal policies of the Democrat Party in the economy, the Greeks gained the chance to restrengthen their places in trade. Along with those developments, the Wealth Tax which was introduced in 1942 to create an additional source of income for the Turkish state during the Second World War had crucial destructive effects on the Greek minority as well as other non-Muslim minorities of Turkey. In addition to forming an additional income for the state, the tax was also to serve the Turkification policy of the state. In a very short notice time, the government collected high amounts of taxes mostly from minorities who had to convert their wealth into cash at a fraction of their real value (Aktar 2001).

Within the discussion about Greek minority of Turkey, the Patriarchate has had a special place since the very beginning. Along with the continuation of the disagreement whether the patriarchate is ecumenical or not, the patriarchate too was closely affected by the state of relations between Greece and Turkey. In line with the détente in relations, the Patriarchate enjoyed a freer environment. During the 1920, the selection of the patriarchate was one of the main issues between Turkey and the Patriarchate. Patriarch Konstantinos Arabacıoğlu was sent to Greece with exchange of populations because he was not holding Turkish citizenship (Eray Biber, 2021: 200). On the occasion of 7th anniversary of the Republic of Turkey President Atatürk and Patriarch Photios II exchanged telegrams (Alexandris, 1983: 195). Atatürk addressed Fotios II with the title 'Patriarch of the Orthodox in the Phanar' instead of 'archpriest' which was preferred by Turkish state to avoid the ecumenical characteristic of Phanar. Atatürk's move was seen as a clear reflection of the détente in relations with Greece. The moderate atmosphere continued during the 1930s and the 1940s positively affected Patriarchate's relations not only with Turkish state but also with third parties. Greek Prime Minister Eleftherios Venizelos visited Patriarchate in 1930 and 1931. Despite good intentions, there was not any significant step taken for the theological education in Chalki neither for the properties of the Patriarchate. This situation was closely related to the state of domestic politics at the time particularly to strong Turkification policies. In 1946, the elections for patriarch were held in full-freedom; meaning that Turkish state did not intervene in the list of candidates. Patriarchship was not simply a religious status but also political one. In 1948 patriarch elections, the archbishop of North and South America who was also supported by the United States was elected as the new Patriarch of Phanar Greek Patriarchate. His election at the time had political implications. North and South America archbishop Athenagoras did not have Turkish citizenship, which was a prerequisite to become patriarch. His candidacy was supported by the United States because his election was seen as a triumph against the Soviet Union who was trying to play the religion card in the Orthodox world. Turkish Grand National Assembly granted him Turkish citizenship in one session and then Athenagoras was elected as the new Patriarch on 1 November 1948. The period from 1949 to 1955 under Athenagoras' patriarchship is stated to be the golden age for relations between the Patriarchate the Turkish state (Macar, 2003: 192-193). Athenagoras was the first patriarchate to visit Agia Sofia since 1453 (Macar, 2003: 193). A few months after his election, the issue of properties of Balıklı foundation was settled down with the transfer of properties to the Patriarchate. In 1951, education in Chalki Theological School restarted for students not only from the Greek community in Turkey, but also from Greece and other Christian countries (Fırat, 2001: 592). All these improvements were also related to developments in Turkey's domestic politics. There was transition to multi-party politics in 1946. The importance of Greek minority's votes for elections and Democrat Party's liberal policies made Greek minority's demand to face response at the pollical level. However,

the outbreak of the Cyprus issue in 1955 had a profound impact not only on bilateral relations between Greece and Turkey but also on the lives of the Greek minority living in Turkey.

The Cyprus Issue and Its Impact on the Greek Minority in Turkey: 1955-1974 Period

1955 Riots and the Greek Minority in Turkey

The détente and good relations established between Greece and Turkey was halted in the midst of the 1950s with the outbreak of the Cyprus issue. Although the issue came to the agendas of Greece and Turkey in the 1950s, the crisis had its roots in the political developments in the island in the 1940s. Previously, the island was under the rule of Britain. After the Second World War, the British was dealing with economic problems inside and fights in its dominions for independence (Demir, Dec 2001- Feb 2002: 109). For its strategic rights, Britain asked for leaving the rule of country but controlling two air bases on the island. There were also Greek Cypriots that were asking for unification with Greece (*enosis*) during the 1940s. Rather than supporting this demand, Greece took the issue to the United Nations and demanded self-determination right for Cyprus in 1954 (Gürel, 1985: 31). Turkey, on the other hand, was acting more prudently, during the first half of the 1950s. It was mainly because it did not want to face any serious problems in its relations with the West and inside NATO. This policy was evaluated by scholars as "no particular Cyprus policy but supporting the status quo on the island (Fırat, 2001b: 598). Despite the governments unwillingness to involve in the Cyprus issue, the attention of Turkish public had already drawn on the island with the news in the press.

Significant development to change the destiny of the island, the relations between Greece and Turkey and the lives of the Greek minority living in Turkey was the multilateral meeting between Greece, Turkey, and Britain in London on 29 August 1955. The sides of the issue came together to discuss the future of Cyprus. Greece was mainly supporting self-determination right of the island and wan not totally rejecting the British demand to keep military bases. Turkey, on the other hand, was favoring continuation of the status quo, which was the British rule. However, if the British were to withdraw from the island, it should be returned to its previous owner, the Ottoman Empire, so Turkey. The negotiations in London were interrupted with the news displaying the attacks in Istanbul and in Izmir against Greek minorities. The events were sparked with the news on 6 September that a bomb attack happened in Thessaloniki against the birthplace of Atatürk. Although this event formed the spark, riots in fact had other reasons behind. There were deep-rooted socio-economic reasons. For this reason, the riots were also described as the 'upheaval of poverty against richness' (Alexandris, 1983: 258). Moreover, years later, it came out that it was an organized action to which the government and the police were involved. The atmosphere during the London meeting of parties was manipulated. In short time, thousands of people took the streets attacked the properties belonging to Greek minority. The attacks continued 6 and 7 September. The destruction was heavy. A journalist of *the Daily Mail* wrote on 14 September 1955 that the Greek neighborhoods in Istanbul looked like the bombed parts of London during the Second World War (Helsinki Watch Report, 1992: 8). There was a total damage of 60 million dollars according to Greek sources. No official assessment of the damage was made by Turkey. In the attacks, one priest died; 4348 stores, 1004 houses,110 restaurants-hotels, 73 churches, 27 pharmacy and laboratories, 26 schools, 21 factories, five athletic clubs, two monasteries, and two cemeteries were ruined (Macar, 2003: 197). Turkish government promised for compensation, but the compensation paid formed a tiny fraction of the whole damage (Alexandris, 1983: 259). However, the damage on the Greek minority were much more than the physical damages. The attacks during the two days fueled the fear and sense of insecurity among the Greek community (Bahçeli, 1990: 173).

The Cyprus Crisis During 1964-1974 and its Impacts on the Greek Minority

The year 1963 is defined by Manisalı (2000: 41) as the year of destruction of the Republic of Cyprus. It is also the year that marked the beginning of destruction of most Greek community who stayed in Istanbul after 1955 riots. By the end of 1963, violence broke out between Greek Cypriots and Turkish Cypriots. While the Cyprus issue was on the top of political agenda in Turkey, it also affected closely the lives of the Greek minority. Turkey followed a policy to use the Greek minority as a trump card against Greece to bring it to the negotiation table accepting Turkey's conditions. Although instrumentalization of the Greek minority did not bring the expected result for settlement of the Cyprus crisis, it served to the Turkification policy by contributing to homogenizing the population of the country. As the crisis in Cyprus fueled and attacked on Turks increased, a new campaign or a sanction was introduced against the Greek minority living in Turkey (Demir and Akar, 1994: 28). Furthermore, the Turkish government did not hesitate express that the destiny of Greeks of Turkey depended on the distance taken in Cyprus issue (Demir and Akar, 1994: 17-18). It is estimated that 30-40 thousand Greeks left Turkey in 1964 (Demir and Akar, 1994: 12).

On 16 March 1964, the 1930 Convention of Establishment, Commerce and Navigation was denounced unilaterally. Turkey's decision was to affect more than 10,000 Greeks with Greek nationals living in Istanbul (Alexandris 1983: 281). However, the real population affected by the decision was much higher. It was mainly because of marriages between Greeks with Greek nationals and Turkish nationals. Although the results of the denouncing of the convention were to start six months later from the denunciation, the expulsion started in two weeks' time. This action was explained by Turkish government as the expulsion of Greeks with Greek nationals who were involved in activities dangerous to internal and external security of the country (Alexandris 1983: 281-282). Thus, many of expulsions took place in the 6 months-time when the violence in Cyprus also reached the highest levels. A particular increase was seen in the number of people who were expelled from Turkey when Magousa was surrounded by EOKA forces and Turkish Cypriots were put under an economic embargo by Greek Cypriots. On the day, when the constitutional court and Turkish courts were destroyed and Rauf Denktaş, was announced as rebel by Makarios, 3,000 Greeks were forced to leave (Demir and Akar, 1994: 63). By the end of September 1965, the number of Greeks with Greek nationals who were deported from Turkey exceeded 6,000 (Alexandris, 1983: 283). In addition to this number, Turkish nationals with Greek descent who left Turkey by October 1964, was around 30,000 (Alexandris, 1983: 286). There were limitations on the commodities that Greeks could take with them while leaving. They were allowed to take a baggage which would not be heavier than 20 kgs and cash money not more than 22 dollars. Their properties estimated to be between 200 to 500 million dollars were left to Turkish state.

Greek minority schools too negatively affected during the period. In 1964, Turkish government refused the repair of damaged school buildings and withdrew recognition of elected school boards of the Greek community (Helsinki Watch Report, 1992: 15). Turkish vice headmasters to Greek elementary and secondary schools were started to be appointed by the Ministry of National Education. During March-April 1964, three headmasters and eleven teachers at Greek schools were dismissed by Turkish authorities and 39 teachers were expelled and six primary schools were closed down (Alexandris, 1983: 286). Moreover, the morning prayers in Greek schools were banned and entrance of Orthodox clergymen to Greek schools was prohibited (Bahçeli 1990: 174). The number of students in Greek minority schools significantly decreased during the period. In 1978, there was only 1,147 students enrolled in Greek minority schools (Helsinki Watch Report, 1992: 15). In 1964, education in Greek language which has started in 1951 on the islands of Imbros and Tenedos was once again forbidden (Oran, 1993: 104). The demographic composition of the islands too was negatively

affected in the 1960s although the Greeks on the islands were not included in the expulsions. Mostly because of witnessing the pressure on the Greeks living in Istanbul, many of them abandoned their homes and fled. In early 1970s, there were 2,622 Greek inhabitants in Imbros and 1,400 in Tenedos (Helsinki Watch Report, 1992: 29). In October 1978, there were barely 7,822 Greeks remaining in Istanbul (Alexandris, 1983: 294).

The Greek foundations were also negatively affected from Cyprus Issue during the 1960s and the 1970s. The *mukataa* tax which reintroduced for minority foundations in 1967. In 1971, the Turkish Supreme Court declared that minorities no longer had the right to establish new *vakıf* properties (Helsinki Watch Report, 1992: 23). In fact, in practice, this decision did not have much impact on the lives of Greek minority at that time since an important part of the population had expelled and there was not much need for the establishment of new foundations. The Greek orphanage on Büyükada was closed down in 1964 and the Greek newspaper *Elefteri Foni* in 1965 (Macar: 2003: 206, 208).

The Cyprus Crisis and Its Impacts on the Patriarchate and the Chalki School

Not only the Greek community in Istanbul but also the Patriarchate was negatively affected by 5-6 September riots. In the press, an anti-Phanar campaign had started before the riots broke out. There was demand for a condemnation of Makarios by Patriarch Athenagoras. Athenagoras tried to keep a neutral stance and stay apolitical by stressing that the patriarchate was a religious institution outside politics (Alexandris, 1983: 253, 270). However, patriarch's effort could not save priests and churches from attacks on 6-7 September 1955. The anti-Phanar campaign in the press in a more intense was after 1963. Along with the negative view about patriarchate was was believed to support EOKA and Makarios in Cyprus, there was also negative views about the Chalki School of Theology. Starting from the academic year of 1963-1964, only Greeks with Turkish national were started to be accepted to the school. Since the population of Greeks with Turkish nationals living in Turkey had declined sharply, and most of the ones who stayed were over 60 years old, the school became dysfunctional. Furthermore, the graduates of the Chalki School were prohibited from teaching at Greek minority schools (Macar, 2003: 206). The Chalki school was totally closed down in 1971 with a degree of Constitutional Court which was to nationalize private institutions of higher education (Oran, 1993: 108). Thus education of Orthodox clergy in Turkey was terminated.

In April 1964, the printing house of patriarchate was closed down and the publishing of two ecclesiastical weekly journals *Orthodoksia* and *Apostolos Andreas* was terminated. In the same month two archbishops were first divested of their citizenship and then deported. The reason for it was explained by Orhan Eralp, the ambassador of Turkey to the United Nations, that the archbishops were working as Greek agents between Greek government and the Orthodox community in Turkey, they were making Greek propaganda and sapping the loyalty of Turkish citizens with Greek origins (Macar, 2003: 204). Moreover, at the same period, priest Xenos who had Greek national was sentenced to prison because of his activities against the Turkish state. In 1965, the relations between Patriarchate and Turkish state were worsened. There was news in the press that the Patriarchate would be inspected. Patriarch Athenagoras stated that the Patriarchate could not be inspected by Turkish authorities. This point of view created harsh response from government authorities. Süleyman Demirel, the vice prime minister at the time expressed that the Patriarchate could be expelled from Turkey if necessary (Macar, 2003: 207). The discussion was particularly of importance regardless of the real intention at a time when Turkey was trying to increase the pressure on Greece to get what it wanted in the solution of Cyprus issue. Turkey's argument could also be read as that the Patriarchate was a Turkish institution bounded by Turkish law.

The violence in Cyprus was terminated with Turkey's military operations on the island. However, it did not mean turning to issue-free bilateral relations between Greece and Turkey. New issues namely the sovereignty issues in the Aegean Sea came to the agendas of the two countries in the 1970s and has stayed there until today. When Patriarch Athenagoras died, a list of candidates was prepared and presented to the Turkish authorities. Turkish authorities intervened in the list and deleted the names of three candidates. As a result, Dimitrios, the archbishop of Imbros and Tenedos was elected as the new Patriarch of Phanar Greek patriarchate in July 1972. Difficulties in relations with Turkish authorities continued in the rest of the 1970s. During 1974-1978, the police denied passports to five archbishops without presenting any reasons. It was only in the 1980s with the premiership of Turgut Özal, the patriarchate faced with few issues.

Conclusion

This study analyzed how the lives of Greek minority in Turkey was affected by the state of bilateral relations between Greece and Turkey from a historical perspective. It is seen that as there was friendship and good neighborly relations, the Greek minority was positively affected from the state of relations. When there was crisis forefront in the bilateral crisis, the Greek minority was negatively affected from the situation. It can be argued that there were two main reasons for this situation. First of all, since Lausanne Conference, Turkey was against existence of a large minority group within the nation-state. That is why when there was crisis in the bilateral relations between Greece and Turkey, the situation was used against the Greek minority. Starting with 6-7 September 1955 events, Greek minority and the Greeks with Greek nationals who were given the right to stay and work in Istanbul were either forced to leave Turkey or expelled with legal regulations. Turkey's power over the Greek minority was also evaluated as a trump card particularly during the Cyprus crisis to force Greece act in line with demands of Turkey and Turkish Cypriots. This trump card in the hands of Turkey did not bring the expected result for it in the settlement of the Cyprus issue. However, the whole process caused melting down of the Greek minority whose population was around 120,000 after compulsory exchange of population was completed. The population of the Greek minority was declined to 7,822 in October 1978 as a result of forced and voluntary leave of Greek people. The population continued to decline in the coming years since it was mostly made by elderly people.

REFERENCES

Çolakoğlu, E. F. (2020). Türk-Yunan nüfus mübadelesini yeniden düşünmek. *Academic Review of Humanities and Social Sciences, 3* (2), 483-499.

Barutciski, M. (2003). Lausanne revisited: population exchanges in international law and policy. Renée Hirschon (Ed.), *Crossing the Aegean: an appraisal of the 1923 compulsory population exchange between Greece and Turkey* (23-38). New York and London: Berghahn Books.

Bozdağlıoğlu, Y. (2014). Türk-Yunan nüfus mübadelesi ve sonuçları. *Türkiye Sosyal Araştırmalar Dergisi, 180* (180): 9-32.

Kayam, H. C. (1993). Lozan Barış Andlaşmasına göre Türk-Yunan nüfus mübadelesi ve konunun T.B.M.M'de görüşülmesi. *Atatürk Araştırma Merkezi Dergisi, 9* (27): 581-608.

Fırat, M. (2001a). 1923-1939 Yunanistan'la ilişkiler. *Türk dış politikası,* Baskın Oran (Ed.), *Kurtuluş savaşından bugüne olgular, belgeler, yorumlar* Vol. I (325-356). Istanbul: İletişim.

Fırat, M. (2001b). 1945-1960 Yunanistan'la ilişkiler. *Türk dış politikası,* Baskın Oran (Ed.), *Kurtuluş savaşından bugüne olgular, belgeler, yorumlar* Vol. I (576-614). Istanbul: İletişim.

Pentzopoulos, D. (2002). The Balkan exchange of minorities and its impact on Greece. London: Hurst&Company.

Alexandris, A. (1983). The Greek minority of Istanbul and Greek-Turkish relations 1918-1974. Athens: Center for Asia Minor Studies.

Oran, B. (1993). The story of those who stayed: Lessons from articles 1 and 2 of the 1923 Convention. Hirschon (Ed.), *Crossing the Aegean: an appraisal of the 1923 compulsory population exchange between Greece and Turkey* (97-115). New York and London: Berghahn Books.

Aktar. A. (1996). Cumhuriyetin ilk yıllarında uygulanan Türkleştirme politikaları. *Tarih ve Toplum, 156*: 4-18.

Aktar, A. (2001). Varlık vergisi ve Türkleştirme politikaları. Istanbul: İletişim.

Eray Biber, T. (2021). Türk-Yunan ilişkilerinin azınlıklara yansıması (1923-1991). *Stratejik ve Sosyal Araştırmalar Dergisi, 5*: 197-217.

Macar, E. (2003). Cumhuriyet döneminde Istanbul Rum Patrikhanesi. Istanbul: İletişim.

Demir, H. (2002). The origin of the Cyprus question: The Britisj policy on the creation of Cyprus Republic. *Perceptions, 4*: 107-121.

Gürel, Ş. S. (1985). Kıbrıs tarihi-II, 1878-1960: Kolonyalizm, ulusçuluk ve uluslararası politika. Istanbul: Kaynak.

Helsinki Watch Report. (1992) Denying human rights and ethnic identity: The Greeks of Turkey. USA.

Tözün, B. (1990). *Greek-Turkish relations since 1955.* San Francisco and London: Westview Press.

Demir, H. & Akar, R. (1994). *Istanbul'un son sürgünleri.* Istanbul: İletişim.

Kline, B. R. (2005). *Principles and practice of structural equation modeling* (Second edit). NY: The Guilford Press.

Nal, M. (2018). Hastanelerde acil yardım ve afet yönetimi. Ankara: Akademisyen Kitabevi

How the Population will Change until 2050 in Türkiye: Population Projection at Province Level with Cohort-Component Method

Erhan ÇENE[1]
Coşkun PARİM[2]

Introduction

Population projections play a pivotal role in understanding and planning demographic landscape of a nation. They are essential tools for policymakers, economists, and social scientists to anticipate changes in population size, age structure, and composition.

Population projections are essential for policy planning as governments rely on population projections to formulate policies related to healthcare, education, housing, and social services. Projections also inform decisions on infrastructure development, resource allocation, and labor force planning. Moreover, projections help businesses and investors anticipate future market trends and consumer demand. A growing or aging population can have significant economic implications. Population projections guide the allocation of resources for healthcare, pension systems, and social welfare programs. They inform decisions about retirement age, healthcare infrastructure, and elder care services. Population projections are essential for understanding and mitigating the environmental impact of human activities. They inform decisions on resource management and sustainability. Population projections can be also used to test "what if" scenarios such as how the population would change if the fertility rate increased from 1.80 to 2.

Brief History of Changes in Turkish Population

At the inception of the Turkish Republic in the late 1920s, the nation's population stood at approximately (Turkish Statistical Institute, 2015c), marked by a predominantly rural and agrarian society where 75% of the population lives in the rural areas (Turkish Statistical Institute, 2015a). Over the ensuing decades, Turkey experienced substantial demographic changes. One of the most remarkable transformations was the rapid urbanization that unfolded, particularly in the second half of the 20th century. The percentage of the population that lives in the rural areas decreased to 56% in 1980, 35% in 2000 (Turkish Statistical Institute, 2015a), 23% in 2010 and 8% in 2020 (Turkish Statistical Institute, 2023e). The growth of urban areas, fueled by rural-to-urban migration, led to the emergence of vibrant cities and metropolitan centers. This demographic transition was paralleled by a decline in fertility rates (5.71 in 1980, 2.53 in 2000 (Turkish Statistical Institute, 2015b) and 1.77 in 2020 (Turkish Statistical Institute, 2023b)), attributed to improvements in healthcare, education, and family planning measures. As a result, Turkey's population growth rate gradually decelerated. Concurrently, the country witnessed an increase in life expectancy, contributing to the emergence of an aging population. The aging of the population can also be confirmed by looking at the elderly dependency ratio (EDR) and child dependency ratio (CDR). CDR decreased from 58% to 34% from 1990 to 2020 whereas EDR increased from 7% to 14% in the same period indicating an aging population (Turkish Statistical Institute, 2015d, 2023a). These multifaceted changes in Turkey's

[1] Assistant Professor, Yildiz Technical University, Departmant of Statistics, ecene@yildiz.edu.tr, Orcid: 0000-0001-5336-6004
[2] Research Assistant PhD., Yildiz Technical University, Departmant of Statistics, cparim@yildiz.edu.tr, Orcid: 0000-0002-6412-1325

demographic landscape have had profound implications for various facets of society, including labor force dynamics, healthcare infrastructure, and social welfare systems. The interplay of urbanization, declining fertility, and an aging population has presented both opportunities and challenges for policymakers, necessitating strategic planning to address the evolving needs of the Turkish population in the 21st century.

On the other hand, Turkey's population is not scattered homogeneously across the country. According to 2022 population data (Turkish Statistical Institute, 2023g) Istanbul is responsible for the 18.65% of the Turkish population alone. This is equal to the sum of the populations of 47 provinces. This makes it crucial to make population projections based on each province separately to make decisions on regional bases on the sectors such as healthcare, education, housing, and social services.

The official population projections in Turkey are being made by Turkish Statistical Institute (TSI) (www.tuik.gov.tr). The latest report for population projections is published on 2018. TSI used 2018 as their base year and make projection for whole country until 2080 (Turkish Statistical Institute, 2018a) and projections based on provinces until 2025 (Turkish Statistical Institute, 2018c). TSI uses cohort component model for making projections and they provide three different scenarios based on different assumptions. For example, for the main scenario TSI assumes that total fertility rate (TFR) will be 2.10 between 2018-2023, linearly decrease to 2.05 in 2030, 1.95 in 2040 and 1,85 in 2050. High scenario has higher TFRs and lower scenario has lower TFRs. Detailed explanations on these assumptions can be reached from metadata (Turkish Statistical Institute, 2018d, 2018b). According to the main scenario, the population of Turkey will reach to 88.8 million in 2025, 93.3 million in 2030, 100.3 million in 2040 and 104.7 million in 2050.

Beside the official projections, there are relatively few studies that addresses population projection and policy making based on those projections in Turkey.

Iskender (2018), aimed to analyze the population growth trend and properties of Turkey between 1925 and 2015 and estimate the maximum level to be reached in the future by using mathematical growth functions of Verhulst and Gompertz. They used the Turkish census statistics from 1927 to 2015 and employed three different growth functions Verhulst Logistic Function, two staged Ricketts/Head function and, Gompertz growth function. These three scenarios yielded upper bound for the Turkey population as 94 million, 115 million and 120 million.

Bostan & Sertkaya Doğan (2019) discussed the characteristics of the population such as age structure, gender status, education status, household size, distribution of workers by economic sector, rural-urban population rates between 1927 and 2018 and afterwards they researched the opportunities and threats on the transformation of Turkish population based on the projections of Turkish Statistical Institute. They concluded that the population would reach to its peak at 2069 with 107.649.413 and will vary around 107 million between 2060 and 2080. In a similar work, Köse & Sertkaya Doğan (2022) investigated the effects of demographic transition caused by the change in fertility and mortality rates by using the data from United Nations and Turkish Statistical Institute.

Şahinarslan (2019) employed six different machine learning algorithms; Light Gradient Boosting, Linear Regression, Ridge Regression, Holt-Winters, Exponential Autoregressive Integrated Moving Average (ARIMA) and Prophet Prediction Model. Models were trained using 1595 different demographic indicators of 262 different countries between 1960 and 2017 and total population of Turkey in year 2017 are predicted. The result of machine learning models is also compared with the Cohort Component Model, and it is concluded that machine learning models can estimate the total population with greater success.

Pekuzun (2021) employed linear regression to predict the average household size in Turkey by using the crude divorce rate, crude birth rate, average age on the first marriage and income. They found that average household size will decrease from 3.35 in 2019 to 2.56 in 2030.

Ceyhan & Diş (2022) used Arithmetical method, geometrical method and city bank method to predict the population of city Kahramanmaras and its counties for 2030 to 2070. The projections suggest Kahramanmaras population will be around 1.5 million according to arithmetical method and around 2 million according to city bank method in 2050.

Beşe Canpolat (2022) makes the projection for number of elderly dependents for the years 2023, 2040, 2060 and 2080. This study uses two different concepts on defining the elderly dependent and find that there will be 7.6 million and 10 million elderly dependents in 2040 and 2060 in the narrow definition and there will be 24 million and 29.5 million elderly dependents on 2040 and 2060 in the wide definition.

Most of the mentioned studies above doesn't make population projections at the province level and some of them uses population projection results based on TSI (Turkish Statistical Institute, 2018a). This study aims to extend this approach by making population projections based on province level which will serve as a base study for future policy making and implications.

Methodology

There are four popular methods to make population projections: trend extrapolation, cohort-component, structural modeling and microsimulation. Trend extrapolation uses historical data and predicts future observations with methods such as linear extrapolation or ARIMA time series. Trend extrapolation can be both applied to population projection and particular component growths such as births, deaths and fertility rates. The cohort component method accounts separately for births, deaths, and migration which are the components of population growth. This method usually divides the population into age-sex groups and project the components of growth separately. This method indicates that before projecting the total population of a region you should first project number of births, deaths and migrations. Structural models focus on causal relationships between demographic and non-demographic variables. In this method, projections are made not only by historical observations but also non-demographic variables such as economic and social variables. The last method is microsimulation methods which focus on individual households and people rather than demographic groups.

In practice, these four approaches, trend extrapolation, cohort component, structural modeling and microsimulation, are not mutually exclusive. This study also follows this convention. Trend extrapolation methods are used to predict components of population growth and cohort-component method is applied to make population projections. More precisely, linear regression methods are applied to predict total fertility rates (TFR) and sex ratios and ARIMA methods are employed to predict age specific fertility rates (ASFR) and migration.

Cohort-Component Method

The cohort-component method is a popular method in projecting population which has a history of over hundred years (Bowley, 1924; Cannan, 1895; Whelpton, 1928). The earliest applications of the cohort-component method. In the US, 95% of the states making projections by using age, sex and race use the cohort component model (Judson, 1997). The cohort-component method is widely used because it is a flexible and powerful approach which cab incorporate many application techniques, types of data and assumptions. Also, it can be used for any level of geography from nations to subcounty areas. Moreover, it provides projections

for both total population and also for demographic composition and individual components of growth (Smith et al., 2013).

The starting point for making population projections with cohort-component method is the launch year population divided into age-sex cohorts. Age cohorts can be defined with different ways, but 1- and 5-year groups are the most common ones. The cohort can also be divided into other variables such as race and ethnicity.

The first step in the cohort-component model is to calculate the number of persons surviving at the end of the projection interval. This can be done by using age-sex specific survival rates in the initial population. Survival rates are commonly based on life tables and future survival rates are based on extrapolation of historical trends.

The second step is to project migration during the projection interval. Again, a separate calculation is made for migration in each age-sex cohort. Migration calculation can be made either calculating in-migrants and out-migrants separately or by calculating net migration. Future migration rates can be calculated with methods based on recent values or trend extrapolations.

Projecting the number of births occurs in the projection period constitutes the third step of the cohort-component model. This can be calculated by applying age-specific birth rates to the female population in each age cohort. Again, projected birth rates can be based on recent values, trend extrapolations, simulated values, model schedules, or structural models.

The last step is to add the number of births and to the rest of the population providing a projection of the total population by age and sex at the end of the projection interval.

Data and Statistical Analysis

The cohort-component model requires current and future estimations of few demographic variables to make projections for the future years for the population. Base year population, total fertility rate for the base year and projection years, age specific fertility rates (ASFR) of age groups for the base year and projection years, sex ratio at birth for the base year and projection years, life expectancy of each gender for the base year and projection years, model life table, and net migration of each gender for the base year and projection years.

In this study, the main aim is to make projections for total population for each province in Turkey between the years 2023-2050.

Base Year Population

Base year is selected as 2022, and base year population cohort is obtained from TSI (Turkish Statistical Institute, 2023h) for each age-sex group and for each province.

Total Fertility Rate (TFR)

Two sources are used to construct total fertility rate for each province. Base year fertility rates are gathered from TSI (Turkish Statistical Institute, 2023j). A good source for obtaining future estimations for the demographic variables is the World Population Prospects (WPP) database published by United Nations (United Nations, 2023). Unfortunately, WPP only provides projections at the country level and not at the provinces level. To overcome this issue, a data from historical and projected total fertility rates are constructed from TSI and WPP database. Afterwards linear regression models are constructed for each province from the historical data where province level fertility rates are the dependent variable and country level fertility rates are the independent variable. Each of the models have a very high explanation power with R2 values over 90%. Finally, by using constructed linear regression models, and using TFR for Turkey in future years as an input variable, future TFR estimations for provinces are made.

Age Specific Fertility Rates (ASFR)

Again, two sources are used to estimate age specific fertility rates (ASFR) for each province. Historical and current data are gathered from TSI for the province level and country level (Turkish Statistical Institute, 2023d). Future estimations for the ASFR at country level are taken from WPP. The same approach is adopted for estimating ASFR, but this time ARIMA time series estimation is employed rather than linear regression. As ASFR is a ratio between 0 and 100, a logarithmic transformation is made not only to ensure the prediction is between 0 and 100 but also to satisfy the stationary of the series. The predictions are normalized such that sum of ASFR for each year and age group combination is equal to 1. Finally, the predictions are re-transformed to the original scale and then used at the total population projections.

Sex Ratio

Sex Ratio is also estimated with linear regression similar to estimating TFR. Historical and current date is gathered from TSI (Turkish Statistical Institute, 2023c)and future estimations for the country level is gathered from WPP. Again, each of the models has a high explanation power with R2 values over 90%.

Life Expectancy

One of the hardest variables to find at provinces level is the life expectancy. Limited number of years available (Turkish Statistical Institute, 2023f) for the life expectancy at the province level which makes it hard to make predictions for the future. Country level life expectancy predictions from WPP is used for each province thus it is assumed that life expectancy is same in every province.

Model Life Table

United Nations' country specific life table (United Nations, 2023) for Turkey is used to define survivorship over time.

Migration

One of the hardest elements to predict in the population projections is the migration. Historical and current migration data is gathered from TSI (Turkish Statistical Institute, 2023i). The linear regression and ARIMA modelling didn't give satisfactory results thus a constant net migration rate based on the average of last 5 years is used for each province.

Software Used for Statistical Analysis

R programming language (R Core Team, 2023) is used for data manipulation and modelling purposes. All the ARIMA and linear regression models are constructed in R programming language. After the final data set is constructed the cohort-component model is evaluated with DemProj module of SPECTRUM 6 software (Bollinger et al., 2023). Spectrum 6 is a free to use software to make policy models including demography, family planning, Malaria etc. DemProj is a module of SPECTRUM that is specialized for demographic analysis.

Results

Table 1 shows the population projections according to the cohort-component method. The base year in the study is 2022. Moreover, projections for both the provinces and the country total in Türkiye for every 5 years between 2025-2050 is given. There will be a decrease in population by 2050 in the provinces of Ağrı, Ardahan, Çorum, Elazığ, Erzurum, Gümüşhane, Karabük, Kars, Kırıkkale, Kütahya, Muş, Tokat, Yozgat and Zonguldak. This decrease will be even greater, especially in the provinces of Ağrı, Ardahan, Gümüşhane and Kars. There is a population increase in all provinces except these fourteen provinces. There is an increase of more than 1.5 times in Şanlıurfa, Şırnak, Tekirdağ and Yalova by 2050. When Turkey's total

population is examined, it is expected that the population will reach approximately 99 million by 2050. Another point that should be noted here is that the population is expected to increase by 2.25 million on average every five years from 2025 onwards.

Table 1. Populations for the base year and population projections for the selected years for each province and country total

NO	PROVINCE	2022	2025	2030	2035	2040	2045	2050
1	Adana	2,274,106	2,304,446	2,341,924	2,365,267	2,377,613	2,377,802	2,360,881
2	Adıyaman	635,169	647,132	664,558	679,907	694,204	706,977	715,944
3	Afyonkarahisar	747,555	757,964	773,190	784,607	791,375	793,194	790,960
4	Ağrı	510,626	501,651	476,401	441,290	399,592	350,965	298,809
5	Amasya	338,267	340,784	344,738	347,917	349,869	350,176	348,746
6	Ankara	5,782,285	5,933,760	6,165,878	6,365,369	6,526,271	6,652,524	6,732,314
7	Antalya	2,688,004	2,791,037	2,954,345	3,107,837	3,251,636	3,382,953	3,493,312
8	Artvin	169,403	170,670	173,158	175,103	175,978	176,190	175,828
9	Aydın	1,148,241	1,179,055	1,230,346	1,279,453	1,324,884	1,367,207	1,405,941
10	Balıkesir	1,257,590	1,281,170	1,320,144	1,356,763	1,389,457	1,418,577	1,443,475
11	Bilecik	228,673	234,091	243,161	251,477	258,505	264,204	268,561
12	Bingöl	282,556	290,218	301,760	311,118	318,379	324,287	328,348
13	Bitlis	353,988	365,366	382,164	396,012	407,660	417,542	427,016
14	Bolu	320,824	328,238	341,508	353,840	364,233	373,528	381,054
15	Burdur	273,799	277,537	284,424	290,313	294,101	296,097	297,194
16	Bursa	3,194,720	3,300,226	3,465,513	3,617,423	3,758,529	3,887,209	3,997,985
17	Çanakkale	559,383	577,666	609,386	640,481	669,374	696,768	722,317
18	Çankırı	195,766	201,101	210,526	219,258	226,931	234,081	241,337
19	Çorum	524,130	520,430	512,138	501,104	487,806	472,459	454,251
20	Denizli	1,056,332	1,071,800	1,094,542	1,112,169	1,124,143	1,129,973	1,129,160
21	Diyarbakır	1,804,880	1,876,203	1,988,305	2,095,626	2,203,591	2,308,538	2,406,379
22	Edirne	414,714	418,627	424,543	427,743	427,524	424,732	420,711
23	Elazığ	591,497	595,425	599,858	600,258	596,491	588,503	575,683
24	Erzincan	239,223	243,815	251,613	258,130	262,319	265,108	266,782
25	Erzurum	749,754	746,479	736,256	717,222	687,774	650,445	606,634
26	Eskişehir	906,617	927,307	960,784	990,065	1,014,840	1,034,994	1,049,252
27	Gaziantep	2,154,051	2,246,559	2,399,122	2,555,636	2,716,371	2,870,029	3,013,563
28	Giresun	450,862	454,559	461,996	468,354	471,876	473,411	473,490
29	Gümüşhane	144,544	136,651	122,740	106,335	86,990	67,910	52,073
30	Hakkari	275,333	282,545	292,759	299,952	303,526	304,071	301,747
31	Hatay	1,686,043	1,726,201	1,788,547	1,848,238	1,905,279	1,952,102	1,980,011
32	Isparta	445,325	453,123	466,723	478,953	488,184	493,991	496,896
33	Mersin	1,916,432	1,962,263	2,033,731	2,098,904	2,157,702	2,207,377	2,240,435
34	İstanbul	15,907,95	16,152,780	16,445,182	16,578,253	16,572,320	16,448,752	16,169,370
35	İzmir	4,462,056	4,559,081	4,704,765	4,827,508	4,927,979	5,010,251	5,066,916
36	Kars	274,829	270,214	259,327	244,334	225,633	203,632	178,894
37	Kastamonu	378,115	381,046	386,282	390,540	393,511	395,685	397,293
38	Kayseri	1,441,523	1,470,832	1,514,794	1,552,420	1,583,259	1,605,444	1,615,835
39	Kırklareli	369,347	377,817	391,812	404,303	414,684	423,879	431,991
40	Kırşehir	244,519	247,549	252,338	255,830	257,106	256,622	254,660
41	Kocaeli	2,079,072	2,185,427	2,358,580	2,526,231	2,690,911	2,851,814	3,000,323
42	Konya	2,296,347	2,351,677	2,439,896	2,516,115	2,579,440	2,630,561	2,663,844
43	Kütahya	580,701	582,448	583,210	579,473	571,347	558,969	543,009
44	Malatya	812,580	823,291	839,370	852,774	863,008	869,246	869,233
45	Manisa	1,468,279	1,500,173	1,549,714	1,593,969	1,633,137	1,666,368	1,692,401
46	Kahramanmara	1,177,436	1,202,710	1,242,347	1,279,991	1,314,783	1,342,882	1,360,822
47	Mardin	870,374	911,770	980,997	1,050,386	1,120,998	1,192,064	1,263,490
48	Muğla	1,048,185	1,093,659	1,170,699	1,247,790	1,324,130	1,398,341	1,469,002
49	Muş	399,202	401,472	400,675	394,376	383,721	369,240	352,480
50	Nevşehir	310,011	317,497	329,578	340,076	349,137	355,987	360,963
51	Niğde	365,419	372,602	384,151	393,907	401,352	405,438	408,055

52	Ordu	763,190	771,538	784,247	794,636	802,243	807,294	808,751
53	Rize	344,016	349,594	358,978	367,236	373,373	377,856	380,489
54	Sakarya	1,080,080	1,122,716	1,193,908	1,262,754	1,327,476	1,387,979	1,443,278
55	Samsun	1,368,488	1,394,985	1,436,536	1,472,687	1,502,236	1,525,098	1,539,453
56	Siirt	331,311	342,589	359,732	373,951	385,520	394,676	402,414
57	Sinop	220,799	227,582	239,976	252,919	265,828	278,616	291,267
58	Sivas	634,924	640,920	649,843	655,277	656,098	652,698	645,518
59	Tekirdağ	1,142,451	1,222,456	1,358,295	1,496,441	1,635,958	1,774,912	1,910,500
60	Tokat	596,454	590,969	579,434	563,685	543,556	519,263	491,315
61	Trabzon	818,023	827,259	841,444	851,907	857,385	859,395	857,127
62	Tunceli	84,366	87,238	92,210	96,772	100,858	105,000	109,422
63	Şanlıurfa	2,170,110	2,300,755	2,523,026	2,763,514	3,032,018	3,328,926	3,664,681
64	Uşak	375,454	379,902	386,546	391,139	393,572	393,476	391,036
65	Van	1,128,749	1,149,651	1,171,965	1,179,922	1,177,804	1,166,428	1,148,107
66	Yozgat	418,442	414,479	405,531	393,002	376,753	357,267	334,761
67	Zonguldak	588,510	581,239	566,092	546,280	520,901	491,536	458,242
68	Aksaray	433,055	444,785	463,335	480,040	495,058	507,265	517,256
69	Bayburt	84,241	87,077	92,434	97,036	100,512	103,155	105,326
70	Karaman	260,838	267,962	280,441	292,435	302,705	311,167	318,079
71	Kırıkkale	277,046	274,873	270,308	263,236	253,072	240,265	225,450
72	Batman	634,491	667,864	723,785	779,582	835,222	889,379	942,401
73	Şırnak	557,605	599,599	672,346	746,617	821,978	899,371	983,484
74	Bartın	203,351	207,945	215,699	222,482	228,012	233,108	237,354
75	Ardahan	92,481	89,814	84,511	78,056	70,673	62,590	53,868
76	Iğdır	203,594	209,183	217,568	224,639	230,712	235,547	239,208
77	Yalova	296,333	312,348	340,028	368,259	396,353	423,939	450,258
78	Karabük	252,058	253,540	256,208	256,915	254,614	250,002	243,944
79	Kilis	147,919	154,558	165,766	176,467	186,753	197,721	209,620
80	Osmaniye	559,405	571,200	589,723	607,238	623,583	637,089	645,817
81	Düzce	405,131	418,571	440,961	462,240	481,314	498,152	512,866
	Türkiye	85,279,55	87,309,335	90,411,374	93,087,764	95,351,603	97,208,269	98,556,962

Both TSI projections and cohort component method results for each year from 2022, which is the base year, to 2050 are given in Table 2. TSI projections are explained as three different scenarios: low, main and high. Türkiye's population forecast according to TSI for 2050 is announced as approximately 99.5, 104.1, and 110.1 million for the low, main and high scenarios, respectively. According to the cohort component method used in this study, it is approximately 98.5 million for the year 2050. The TSI low scenario projections gives the most consistent results with the projections conducted. It gives very similar results to the TSI Low scenario. In addition, the annual average increase value for 2022 according to TSI projections and beyond are approximately 508, 673 and 841 thousand as low, main and high, respectively. This value has been calculated as 475 thousand according to the cohort component method. Considering both the TSI scenarios and the model used in our study, it would not be wrong to say that there will be an increase in the Türkiye's population in the next years.

Table 2. Comparison of TSI Projection Results and cohort component method result for total population for Türkiye

YEAR	TURKEY PROJECTION	TSI PROJECTION MAIN SCENARIO	TSI PROJECTION HIGH SCENARIO	TSI PROJECTION LOW SCENARIO
2022	85,279,553	85,911,035	86,537,390	85,286,240
2023	85,967,099	86,907,367	87,662,775	86,154,191
2024	86,644,593	87,885,571	88,771,149	87,003,006
2025	87,309,335	88,844,934	89,861,711	87,832,057
2026	87,960,976	89,784,584	90,933,487	88,640,569
2027	88,596,378	90,703,600	91,985,451	89,427,718
2028	89,219,518	91,601,117	93,016,639	90,192,737
2029	89,824,821	92,476,323	94,026,138	90,934,904
2030	90,411,374	93,328,574	95,013,214	91,653,660
2031	90,982,261	94,153,776	95,976,819	92,341,931
2032	91,535,272	94,951,512	96,916,484	92,999,359
2033	92,069,683	95,721,347	97,831,770	93,625,521
2034	92,588,449	96,463,090	98,722,555	94,220,172
2035	93,087,764	97,176,768	99,589,002	94,783,231
2036	93,567,562	97,862,549	100,431,455	95,314,720
2037	94,037,631	98,520,720	101,250,410	95,814,759
2038	94,492,778	99,151,467	102,046,300	96,283,334
2039	94,928,673	99,754,923	102,819,552	96,720,342
2040	95,351,603	100,331,233	103,570,667	97,125,652
2041	95,760,625	100,882,655	104,302,326	97,501,188
2042	96,150,061	101,409,507	105,015,342	97,846,891
2043	96,520,364	101,911,980	105,710,400	98,162,580
2044	96,873,398	102,390,159	106,388,030	98,448,025
2045	97,208,269	102,843,989	107,048,559	98,702,920
2046	97,521,107	103,273,571	107,692,407	98,927,169
2047	97,811,290	103,679,038	108,319,938	99,120,789
2048	98,077,611	104,060,257	108,931,121	99,283,646
2049	98,330,368	104,417,089	109,525,760	99,415,722
2050	98,556,962	104,749,423	110,103,525	99,517,154

Table 3 shows the 2025 projections on a provincial basis for both TSI and cohort component methods. The main difference is that the main TSI projections is calculated based on 2018. However, 2022 is haven as the base year in this study. Additionally, TSI only announces its projections annually for its main scenario. Although the low scenario of TSI projections is closer to the predictions in this study, a comparison is made with the main scenario projections since it is not announced annually by TSI. When the cohort component method used in the study and the TSI main scenario are compared for 2025, the results are quite similar. According to the TSI main projections scenario, there is an increase in 45 provinces, while the population in 36 provinces is expand according to the cohort component method. Finally, there is a difference of approximately 1.5 million among two projections for the whole population of Türkiye.

Table 3. Comparison of TSI projections (base year 2018) and cohort component method results of this study (base year 2022) art province level

NO	PROVINCE	2025 PROJECTION	TSI 2025 PROJECTION	NO	PROVINCE	2025 PROJECTION	TSI 2025 PROJECTION
1	Adana	2,304,446	2,316,131	42	Konya	2,351,677	2,370,272
2	Adıyaman	647,132	653,891	43	Kütahya	582,448	576,830
3	Afyonkarahisar	757,964	734,086	44	Malatya	823,291	829,028
4	Ağrı	501,651	502,538	45	Manisa	1,500,173	1,505,399
5	Amasya	340,784	338,699	46	Kahramanmaraş	1,202,710	1,229,712
6	Ankara	5,933,760	6,263,201	47	Mardin	911,770	867,985
7	Antalya	2,791,037	2,773,397	48	Muğla	1,093,659	1,070,849
8	Artvin	170,670	159,048	49	Muş	401,472	393,629
9	Aydın	1,179,055	1,196,815	50	Nevşehir	317,497	305,367
10	Balıkesir	1,281,170	1,272,092	51	Niğde	372,602	369,654
11	Bilecik	234,091	245,826	52	Ordu	771,538	763,581
12	Bingöl	290,218	291,777	53	Rize	349,594	333,037
13	Bitlis	365,366	352,333	54	Sakarya	1,122,716	1,152,958
14	Bolu	328,238	343,903	55	Samsun	1,394,985	1,413,427
15	Burdur	277,537	266,085	56	Siirt	342,589	349,554
16	Bursa	3,300,226	3,324,559	57	Sinop	227,582	212,151
17	Çanakkale	577,666	580,627	58	Sivas	640,920	612,535
18	Çankırı	201,101	176,039	59	Tekirdağ	1,222,456	1,296,443
19	Çorum	520,430	521,647	60	Tokat	590,969	605,082
20	Denizli	1,071,800	1,120,115	61	Trabzon	827,259	840,993
21	Diyarbakır	1,876,203	1,885,744	62	Tunceli	87,238	75,854
22	Edirne	418,627	412,595	63	Şanlıurfa	2,300,755	2,355,157
23	Elazığ	595,425	612,439	64	Uşak	379,902	405,368
24	Erzincan	243,815	248,308	65	Van	1,149,651	1,166,331
25	Erzurum	746,479	745,449	66	Yozgat	414,479	376,241
26	Eskişehir	927,307	998,571	67	Zonguldak	581,239	580,284
27	Gaziantep	2,246,559	2,330,559	68	Aksaray	444,785	450,853
28	Giresun	454,559	458,072	69	Bayburt	87,077	86,587
29	Gümüşhane	136,651	190,270	70	Karaman	267,962	262,252
30	Hakkari	282,545	274,826	71	Kırıkkale	274,873	284,528
31	Hatay	1,726,201	1,705,751	72	Batman	667,864	665,806
32	Isparta	453,123	448,387	73	Şırnak	599,599	549,783
33	Mersin	1,962,263	1,950,784	74	Bartın	207,945	199,328
34	İstanbul	16,152,780	16,708,850	75	Ardahan	89,814	86,591
35	İzmir	4,559,081	4,672,976	76	Iğdır	209,183	201,974
36	Kars	270,214	263,097	77	Yalova	312,348	329,001
37	Kastamonu	381,046	388,206	78	Karabük	253,540	275,389
38	Kayseri	1,470,832	1,532,587	79	Kilis	154,558	144,968
39	Kırklareli	377,817	381,213	80	Osmaniye	571,200	580,538
40	Kırşehir	247,549	263,109	81	Düzce	418,571	432,638
41	Kocaeli	2,185,427	2,332,373		Türkiye	87,309,335	88,844,934

Figure 1 shows the population projections for each province between 2023-2050. Figure 1A shows the population projections for Türkiye total. Figures 1B – 1J show projections for provinces classified according to population sizes. Figure 1B shows that the population of any province other than Istanbul will not exceed 15 million by 2050. Figure 1C shows that the projections of Ankara, Izmir, Bursa, Şanlıurfa, Antalya, Gaziantep and Kocaeli provinces also increase, but the populations will be between 3 million and 15 million. When the projections of the provinces of Erzurum, Elazığ and Kütahya (Figure 1F), Tokat, Çorum and Zonguldak (Figure 1G), Muş and Yozgat (Figure 1H), Ağrı, Karabük and Kırklareli (Figure 1I), Kars (Figure 1J) are examined, there will be a decrease in their populations. An increase is projected in the populations of all other provinces.
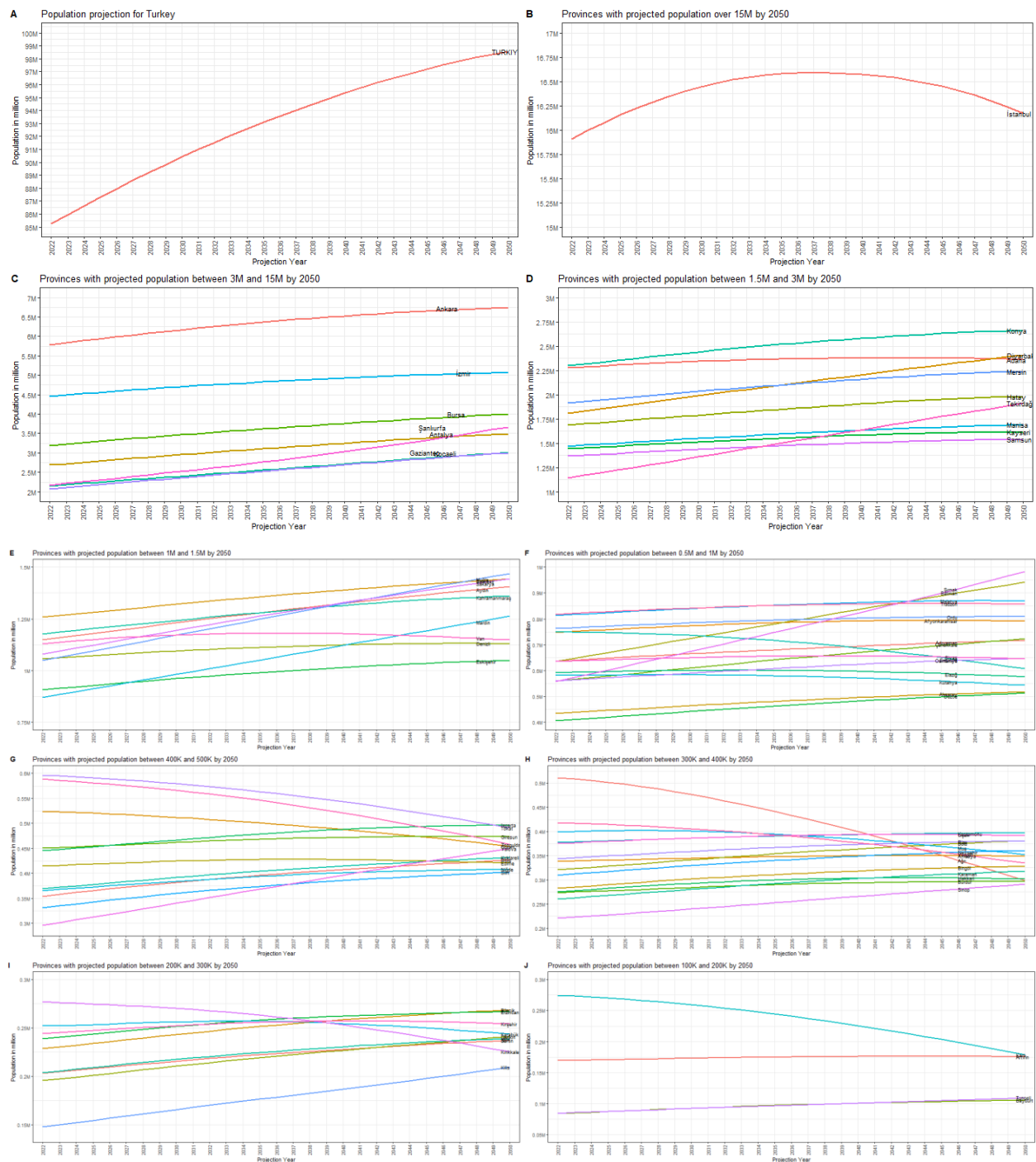
Figure 1. Population projections for each province between 2023-2050

Discussion and Conclusion

The economic, socio-economic, cultural and political structure of a country is directly related to its population. Increases or decreases in population greatly change the development and structure of regions. Therefore, population projections are vital for states, countries and regions. This study aims to propose an alternative approach to TSI estimates by making population projections at the provincial level in Turkey. Population projections are made by TSI with 3 different scenarios. These are low, major and high scenarios. In this study, projections are made based on provinces and Türkiye using the cohort component method. This projection made for Turkey until 2050 gave very similar results to the low scenario announced by TSI. Additionally, when the results are compared with the TSI main scenario for 2025, it is

seen that the population projections give similar results. This situation reveals the predictive power of the cohort component method.

In recent years, there is almost no study in the literature other than TSI that makes population projections covering Türkiye's total and provinces. Ceyhan & Dis (2022) made a Kahramanmaraş population projection for 2050 according to two different methods and conducted two different scenarios, one of which is 1.5 million and the other is 2 million. The impact on the population of the region from the February 6, 2023, Kahramanmaraş earthquake, which occurred shortly after the publication of the study, is not one of the issues included in this study. It would not be wrong to say that the loss of life and the increase in migration to other provinces after the earthquake will reduce the population. Contrary to this study, according to the method we used in our study, the population of Kahramanmaraş province is predicted to be 1.36 million.

Bostan & Sertkaya Doğan (2019) discussed the characteristics of the population over TSI data. Köse & Sertkaya Doğan (2022) also investigated the effects of demographic transition caused by the change in fertility and mortality rates by using the data from Turkish Statistical Institute.

As a result of the projections, a decrease in 2050 is expected in the populations of Ağrı, Erzurum, Elazığ, Kars and Muş in the Eastern Anatolia Region, Kütahya in the Aegean Region, Karabük, Tokat, Çorum, Zonguldak in the Black Sea Region, Yozgat in the Central Anatolia Region, and Kırklareli in the Marmara Region. Investigating the reasons in decrease is important in terms of examining the investments and cultural and political changes to be made in these provinces and regions.

In conclusion, all three scenarios made by TSI that the population will increase in the next 25 years. This study also gives similar results, especially with the low TSI scenario. The socio-economic, cultural and political dimensions of this increased need to be examined separately. Even in the lowest scenario, our country's population is estimated to be approximately 100 million in 2050, which may affect plans.

REFERENCE

Beşe Canpolat, Ş. (2022). Analyzing the Economic Effects of Population Aging in Terms of Long-Term Care Services: Dependent Population Projections for Turkey. Journal of Social Security, 12(1), 53–84.

Bollinger, L., Pretorius, C., Sanders, R., Sonneveldt, E., Stover, J., & Winfrey, J. (2023). Spectrum Manual Spectrum System of Policy Models (6). Avenir Health.

Bostan, H., & Sertkaya Doğan, Ö. (2019). According to Population Projections Demographic Transformation and Opportunities in Turkey. Eastern Geographical Review, 24(41), 61–90.

Bowley, A. L. (1924). Births and population in Great Britain. The Economic Journal, 34(134), 188–192.

Cannan, E. (1895). The probability of a cessation of the growth of population in England and Wales during the next century. The Economic Journal, 5(20), 505–515.

Ceyhan, Z. N., & Diş, M. Ö. (2022). Determining the Future Population of Kahramanmaras via Multiple Projection Methods. Cukurova University Journal of the Faculty of Engineering, 37(4), 1155–1164.

İskender, C. (2018). Turkish Population Growth and Estimates. Istanbul University Econometrics and Statistics E-Journal, 14(28), 75–141.

Judson, D. (1997). FSCP member survey. Reno: Nevada State Demographer's Office.

Köse, M., & Sertkaya Doğan, Ö. (2022). Demographic Transition, Structural Change and Future of Turkey's Population in the Context of Population Policies. Dumlupinar University Journal of Social Science, 74.

Pekuzun, E. (2021). Analysis of the Change in Household Size in Turkey at the Provincial Level and a Future Projection (In Turkish). Karabuk University.

R Core Team. (2023). R: A Language and Environment for Statistical Computing (4.3.1). R Foundation for Statistical Computing.

Şahinarslan, F. V. (2019). Population estimation with machine learning algorithms: Türkiye example (In Turkish). Istanbul Technical University Social Sciences.

Smith, S. K., Tayman, J., & Swanson, D. A. (2013). A practitioner's guide to state and local population projections. Springer.

Turkish Statistical Institute. (2015a). City and village population, 1927-2000. Statistical Tables. https://data.tuik.gov.tr/Bulten/DownloadIstatistikselTablo?p=aJDMS8xykwlwEVjHWwNOoCnnpKsOIWDQ/d7jHO525QbWlDkmC1rL7k4kYlnkAjlR

Turkish Statistical Institute. (2015b). Fertility, infant and child mortality rates, 1970-2000. Statistical Tables. https://data.tuik.gov.tr/Bulten/DownloadIstatistikselTablo?p=qexUj6fGKRrHPerIW7d7NQcGWDULK6Heb7NapL/Ie7ILOnHtMQxG8g5YBHY1H3/h

Turkish Statistical Institute. (2015c). Population, annual growth rate of population and mid-year population estimate, 1927-2000. Statistical Tables. https://data.tuik.gov.tr/Bulten/DownloadIstatistikselTablo?p=b0kHKz/eHSZUxIK3/CJgMlDH9ZcJewVacPG9BkBiIE5qKzr//jzdOhEn0AQlqNLM

Turkish Statistical Institute. (2015d). Population by age group and age dependency ratio, 1935-2000. Statistical Tables. https://data.tuik.gov.tr/Bulten/DownloadIstatistikselTablo?p=SWHtjUjVbn5k3PciDZ8FbAuR jt6flAfJbPPP9UX3NhS8eTtM/hp6Ax7tPmBHLQC3

Turkish Statistical Institute. (2018a). Population by scenarios, 2018-2080. Statistical Tables. https://data.tuik.gov.tr/Bulten/DownloadIstatistikselTablo?p=/7jI6Ame0QXdJoI7KwbO18BA YPrsODxo/qqaxmKHZrsKVsrAw5AvGWwDYqDy2V6T

Turkish Statistical Institute. (2018b). Population by scenarios, 2018-2080, metadata. Statistical Tables. https://data.tuik.gov.tr/Bulten/DownloadIstatistikselTablo?p=Xj9Nw8SUhJBEtDtXF6SpKnI EZfOxaxkq4kAnLskZz5AGEacBeKhcCH9mmpFlcidhLoHhP6VShgTYTVELjBc0JQ==

Turkish Statistical Institute. (2018c). Population of provinces by years, 2018-2025. Statistical Tables. https://data.tuik.gov.tr/Bulten/DownloadIstatistikselTablo?p=LTUAkOStZzZ6Wnk9qZhTCk 2mw24ffK/Oe688CU2/a/Sp3xblnyy1LzFZI3RGfFxT

Turkish Statistical Institute. (2018d). Population of provinces by years, 2018-2025, metadata. Statistical Tables. https://data.tuik.gov.tr/Bulten/DownloadIstatistikselTablo?p=VoI247b4kmvIJA2pK2B30ua0 HH/9uMZYHSIQUNlplSODTCaeE8bDSCadctSTzGyjJrL3a5UQLlxDuA/QzW/bvA==

Turkish Statistical Institute. (2023a). Age dependency ratio, 2007-2022. Statistical Tables. https://data.tuik.gov.tr/Bulten/DownloadIstatistikselTablo?p=vFaNyMMPbhWk4HiEToEFjJtt ob8fiHhG8g0Pfq4Jm6Q2rQu72affPunYyGvpKv3u

Turkish Statistical Institute. (2023b). Basic fertility indicators, 2001-2022. Statistical Tables. https://data.tuik.gov.tr/Bulten/DownloadIstatistikselTablo?p=rgvzc05Cw1VTpnIVaMZ3QtG REP70w0fVWlZlLyD7PCkZGuh6/VuoBo0YpYRpmy5t

Turkish Statistical Institute. (2023c). Births by province and sex, 2009-2022. Statistical Tables. https://data.tuik.gov.tr/Bulten/DownloadIstatistikselTablo?p=dAA0i6yOiztFRH7wxYTSgkzx Qlz5E6YwT9jz57LWYUr7F1MADGrYbZ8qGp8ufDju

Turkish Statistical Institute. (2023d). Births by Statistical Regions and age group of mother, 2009-2022. Statistical Tables. https://data.tuik.gov.tr/Bulten/DownloadIstatistikselTablo?p=luMHltTKOwbvhUQOsCMPR UlaEpXqsy31mXa7RWFQDYXjC5k6/c1M54rMsG/wIoqM

Turkish Statistical Institute. (2023e). City and village population, 2007-2022. Statistical Tables. https://data.tuik.gov.tr/Bulten/DownloadIstatistikselTablo?p=m7Hi2w2VyeJb8ga4K3Dc8lN muasy1etHgwKeR7CVwvjKEEWJFS/m3plbhRUk2M2E

Turkish Statistical Institute. (2023f). Life expectancy at birth by provinces and sex, 2013, 2013-2014, 2015-2017, 2018-2020. Statistical Tables. https://data.tuik.gov.tr/Bulten/DownloadIstatistikselTablo?p=L0b/D2YjEF6oO57Dpsv7w4Ab rUSR72L1CHzLi93DmlKTWYISsi70SLGuo3GkpX8d

Turkish Statistical Institute. (2023g). Population by years for each province, 2000-2022 . Statistical Tables.

https://data.tuik.gov.tr/Bulten/DownloadIstatistikselTablo?p=SLuPguzNtF0I2FLS8EYfff8HU
2IDfQUE9ObBwwoAwq3qYXdaKiZqVnSLGhV38Wqa

Turkish Statistical Institute. (2023h). Population of province/district centers and towns/villages by age group and sex, 2007-2022. Statistical Tables. https://data.tuik.gov.tr/Bulten/DownloadIstatistikselTablo?p=uix84T8IMBDHWCJei/UUdBn 6q/lfguFCUDdfM5n53Tu2DB/DvbYloHaqBzxHF2bk

Turkish Statistical Institute. (2023i). Provincial in-migration, out-migration, net migration, rate of net migration, 1980-2022. Statistical Tables. https://data.tuik.gov.tr/Bulten/DownloadIstatistikselTablo?p=BbdkSWql3pr63IGTVFQNDaq J3yR7XbM91KyEOuvPFmg/y0QF0Pzi2qwEs3ahhW2o

Turkish Statistical Institute. (2023j). Total fertility rate by provinces, 2009-2022. Statistical Tables. https://data.tuik.gov.tr/Bulten/DownloadIstatistikselTablo?p=wBIn9gg81QthCunwWNOqEO y8/pp4x0gWMy5v2/uB5bF75bSnbWsF76WeqNM0bnXl

United Nations. (2023). World Population Prospects 2022: Summary of Results.

Whelpton, P. K. (1928). Population of the United States, 1925 to 1975. American Journal of Sociology, 34(2), 253–270.

On the Relationship of Heraclitus Philosophy with the Social-Political Order

Ezgi ÖREN[1]

"There is no sentence of Heraclitus that I have not taken into my logic."

George Wilhem Friedrich Hegel[2]

Introduction

The differentiation and humanization of humans, who are a part of nature, results in the development of various production tools to meet their needs within the process of relationship with nature, the differentiation of production areas, and the use of different production organizations, technologies, and natural resources. At this point, every form of society composes a unique lifestyle which based on its form of livelihood, and a way of thinking compatible with this way of life (Şenel, 1997). Therefore, to understand an idea, it is necessary to first examine the society in which it developed. To understand Heraclitus' philosophy, it is important to analyze the discussions that continued until him and the answers given to the basic philosophical questions of the period. The discussions of the period focused on determining the essence of the universe, from which everything emerged and which determined everything. Thales identified this essence as Water, Anaximander as Apeiron (Indeterminate, unlimited), Anaximenes as Air, Parmenides as Being, and Heraclitus as Fire. This study deals with the philosophy and dialectics of Heraclitus, who states that the essence of the universe is fire. Here, the influence of Parmenides' definition of Being on Heraclitus' thoughts cannot be ignored. Therefore, the philosophy of Parmenides will be briefly included in the text. In addition, it is important to trace the thought process that preceded it to make sense of the discussions mentioned. For this reason, I will first tell the period before philosophical thought and some of the main characteristics of this way of thinking, and then about philosophical thought. Finally, I will try to explain Heraclitus' life, philosophy, and the dialectics which considered the father of.

Pre-Philosophical (Scientific) [3]Thought and Some Main Characteristics of It

Unlike other living creatures, humans not only maintain their existence in society but also produce society. While producing society, they not only lead to the transformation of the material environment but also produce a series of intellectual structures, cultural and ideological fictions along with material life (Ercan, 2001). These intellectual structures cause people to define their daily lives within their meaning systems and to attribute certain meanings to what is happening. This meaning-making adventure of human beings, called "Animistic thought",

---

[1] Dr. Öğr. üyesi, Atatürk Üniversitesi
[2] Cited from Hegel: Kranz, Walter
[3] In this period, both concepts meant the same thing.

begins with man's helplessness and ignorance in the face of nature where he only tries to explain and solve himself at the spiritual level and gives meaning to nature with what is inside it. In this period, man, who became aware (of humanity believed the soul through dreams (Örnek, 1971) of the separation of soul and body through magical, hence 'analogical' (Şenel, 1997) thought, gave a soul to everything outside. After the magical, religious system phase specific to the tribal society called totemism, new meanings were needed in such societies, called civilized societies, where humans won victories over nature, transformed nature, agricultural production began, social surplus was obtained, and classes were formed with the increase in the division of labor. At this stage, called "religious thought", the farmer no longer believed that a spirit lived in each bunch. The spirits of all the crops were united and turned into a single fertility goddess who made the ears grow (Ilin&Segal, 1995). In this new social order, the rulers and the clergy, who were the ideologists of this society, used this religious thought and attempted to systematize it to rule the society. In this era, since humans were the active element in nature, there was a tendency to give human form to all kinds of gods (anthropomorphism) (Şenel, 1997) and everything was tried to be explained in terms of supernatural powers.

After the Doric raids, ancient Greece entered a process similar to medieval feudalism, and during this period, aristocrats were in power as the ruling class. The dominant thought system of this period, called the "Heroic Age", is "Mythological Thought", which naturally reflects the aristocratic worldview (Ağaoğulları, 2000). In this way of thinking, natural forces are living beings (gods); Human-nature, human-human relations, and natural events are tried to be explained with some myths (in myths, not concepts but images were predominant (Hilav, 1997a) by seeing them as the product of the thoughts and actions of the gods (Şenel, 1999).

Philosophical (Scientific) Thought and Some Main Characteristics of It

As the bourgeois middle classes, which became stronger within the existing economic and social order, tried to get a share of political power, they also had to fight against mythological thought, which was the ideology of the aristocracy. At least could myths that say aristocrats are descended from gods and have absolute power convince this newly empowered class? Instead of this thought, which was inadequate to explain newly developing social phenomena and did not satisfy them, people attempted to make secular (non-religious) explanations of the universe and society. Thus, mythological thinking was replaced by philosophical (scientific) thinking. Two points should be emphasized here. The first is the philosophy-science identity. When viewed from today, it would not be wrong to say that the ancient age perceived the activity of "theoria" based on purely rational thinking and, accordingly, philosophy as its own "science" (Özlem, 1996). Let's expand on this topic a bit; Ancient philosophy is based on the opposition between history and theory (theoria-historia). Accordingly, the universe is an orderly formation, a "cosmos"; there is a reasonable, unchangeable, permanent order in the universe, and since this order is reasonable, it can be grasped through purely rational thinking. The knowledge of the fundamental causes, the unchangeable, permanent, and regular, can be reached through theoria, as a purely rational thought activity. The main example of theoria activity is philosophy. Philosophy pursues the knowledge of the unchangeable, permanent, general-universal-generally valid. Its subject is not things that are changeable, temporary, random, and individual-particular, namely, not process, but the existence behind this visible reality (Akarsu, 1984). According to ancient philosophers, nature could be discussed not according to the knowledge of being obtained through empirical observations, but according to the knowledge of existence which theoria activity head towards. Since the social life within this nature is shaped according to the principles set by people, it could never be unchangeable, permanent, general-universal, or generally valid in the same way as the principles of existence. These laws were imperfect and temporary, and therefore social

life was always a field of irregular, random, transient, individual events[4]. Shortly, historical-social reality could not be the subject of theoria activity; there was no immutable, permanent regularity in this area; There would be no "generality" that the theoria activity could extract from this field. Our knowledge about this area could only be individual news knowledge (historia). Thus, Antiquity has always been observed as the opposition of the knowledge of reason-knowledge (theoria-historia), reason-experience (theoria-empeiria); knowledge of existence-becoming (episteme-doxa); reason (logos), and at the same time the knowledge of reason-multitude (polihistory) (Özlem, 1996). For all philosophers, from Heraclitus to Plato and Aristotle, the knowledge that the study of nature and history can offer just a knowledge of multiplicity, a polyhistory.

The second point, related to the above, is that philosophy is largely understood as metaphysics. Metaphysics has been seen as the field of ideas and principles, including the principles of the perceived world, but which can only be obtained intellectually, not perceptually, or which are believed to already exist. For this reason, philosophy and metaphysics overlap to a large extent. Philosophy, as a thinking effort in pursuit of universality, the unchangeable and the permanent, could only be metaphysical. So much so that even the practical principles necessary for moral/social life could only be found within metaphysics. Theology was at this point a complement to metaphysics. Because the ultimate object of metaphysics was God. Theology predicts that the metaphysical "first cause" should be understood as "God" and thus tells us what the highest knowledge, the highest Truth, that metaphysics can reach is. Just as God is the highest point of its existence, theology is the last stage of metaphysics and crowns metaphysics. God is both the determinant of natural and human existence and the source of all values. At the same time, God is also the authority from which human thinking takes part and is headed. In short, God is the subject of everything (Özlem, 1999). Thus, the "dominant" philosophy in general until a new type of philosophy developed with the modern age and Descartes (placing "human", not "God", at the center of everything; replacing "God-subject" with "Human-subject") developed in this way.

Philosophical thinking was first seen in the Ionian city-states, which had already begun their economic, social, and political revolutions in the B.C. 6th century. Most of the events that took place there could no longer be explained through myths, and this destroyed the belief in myths. Thus, philosophical thought emerged with the criticism of this mythical thought based on images and with the effort to respond to images or designs with concepts and reasoning, not with religious thought. Ionian thinkers sought an answer to the question that 'since the events in the universe do not occur with the wishes and will of the gods, what is the underlying truth of these events, what is the main substance of the universe that forms on its own? (Özlem, 1999). The discussion of things that had not been discussed until then brought about the process of persuasion, negation, and the dialectical method (Hilav, 1997a) (here meaning discussion). First of all, there had to be a reason for what was happening (causality). They took these reason from supernatural powers and gave them to things (substances) existing in nature. Then the idea developed that one of these reasons determined all the reasons. This reason should be the main essence behind everything, the main reason from which everything arises, a reason that determines everything so that all the events that myths cannot explain should be explained in terms of it. Since nothing can come into being from nothing, everything had to have a main substance and a main starting principle. During these periods, all philosophers tried to find this

---

[4] I would like to point out that saying this does not mean that I deny all efforts in this direction. What I want to point out is that the effort of philosophy is not to find social principles (thesei), but to reach the knowledge of existence. For example, there is no equality even in Plato, who emphasizes that social life should be organized with such efforts, that is, with immutable, permanent, general-universal-general principles of existence. Even in that case, there was no identity between the social principles experienced at that moment and the principles of existence. He aimed to bring the "world of ideas" and the social order he lived in closer together and make them similar to each other.

main, single, unchanging substance. Then, the main principles emerged, which Thales called Water, Anaximander called Aperion (Indeterminate, unlimited), Anaximenes called Air, Parmenides called Being, Heraclitus called Fire, etc. Here, Parmenides' thoughts are important in terms of Heraclitus' philosophy. The philosophy of Parmenides, who is considered the founder of the Eleatic school, was also formed under the influence of Xenophanes' understanding of the "Godly Absolute One".

In his current environment, the answers given to the question of what is the reason for everything, what everything comes from, and what determines everything did not satisfy Parmenides. For example, if this unchanging substance is air, what was the cause of air? He sought for something that was its cause, its determination. Parmenides answered this question with "Being". He denied the reality of being, change, and multiplicity. For him, the only reality was existence. Becoming, changing was an illusion. Being was one (duality and multiplicity were not real), it was not born and would not perish (if it were born, there must be something else that gave birth to it), and it could not be anything other than itself (it should be identical with itself, it should not change), it was whole, closed to itself, without boundaries, indivisible, uncondensed, undiluted, timeless. Intellectual existence outside of time and space was, in this respect, the exact opposite of existence within time and space. Thus, in the face of ever-changing multiplicity, Parmenides posits something that is the exact opposite, a unity that is closed to itself and always remains as it is. According to him, it is the senses that show us multiplicity, but the senses mislead us, sense perceptions are the wrong source of knowledge. It is thinking that makes one comprehend the only and real existent (that is, Being), and therefore the right path of knowledge is entered through thinking (Gökberk, 2000).

Parmenides does not want to say that appearances and the external world do not exist, but he says that 'the external world is not the real being, it is not real (Stace, 1976). He simply makes a distinction between reality and existence and says that all becoming, change, and movement are only apparent and therefore not real. According to him, 'only being is real, but being does not exist, because it is nowhere and timeless. However, something that exists must exist at a certain time, even if it is not in a certain place. Therefore, existence is not real and what is real does not exist (Stace, 1976).

Like Parmenides, Heraclitus' main interest is in trying to answer the question of "being". He also started by researching what the "essential being" is, that "reality", that "main substance" that does not lose its unity in all these changes. However, before starting with Heraclitus' philosophy, I think it would be appropriate to take a brief look at his life to understand him better.

On the Life and Personality of Heraclitus

Heraclitus thought to have lived between 540 and 480 BC, was the eldest son of an old and aristocratic family from Ephesus. He played an important role in the political life of the city where he was born, contributed to the defeat of the ruling tyrant Melankomas, and after the democratically inclined party came to power, he took action at the head of the aristocratic party to change the constitution with his friend Hermodoros but failed. After that, he cut off his interest in the world and settled in the temple of Artemis near Ephesus. This exemplary inquirer, seeing himself in bitter contrast with his contemporaries as well as with his predecessors, the great man who loved solitude, moves away from living in community after losing hope of being able to lead his homeland to the path of a savior policy (Kranz, 1994), Here, it should not be overlooked that Heraclitus lived in the age of Persian domination of the Aegean and Greek regions and was a witness to an age full of contradictions between the democratic bourgeoisie of the Greek cities and the military order of the Persians. He thought that if an agreement was made with the Persians, his society would live in security, but at the same time, he thought that

the hostile forces would recover, Persian sovereignty would be defeated after nearly ten years of conflict, the city-states would re-establish themselves as confederations, industry, trade, maritime, and as a result, art and philosophy would develop (Childe, 1998). He saw that his homeland, the Aegean city-states, were becoming increasingly corrupt. Amidst all these contradictions and conflicts, Heraclitus had nothing to do other than accepting the flattering invitation of the Persian King Darius I and, at the same time, other than actively participating in the affairs of the city, which was under the rule of democrats in those ages. So, he went into exile at his request.

He was not only an aristocrat in his ancestry, but also an aristocrat in his thoughts. His work, "On Nature", of which only a few chapters have survived to the present day, was written in a very difficult-to-understand, dark style, in the form of aphorisms, with an elitist approach, only for high-level intellectuals and sages, so it was not well understood at that time, and for this reason, he was called "Dark Heraclitus". This style was consciously invented by him, otherwise this "darkness" does not come from the fact that his philosophy is dark and blurry or that he cannot find the appropriate style of expression to express his thoughts, it is because he despises the "multitude", the "mass", and regards them as unintelligent. According to him, this "mass" is obsessed with the external aspect of everything and wallows in superstitious beliefs, and their lives are empty and meaningless. That's why he shouted the "flaws" of such people in their faces with harsh words (Magee, 2000).

On the Philosophy of Heraclitus

Like the other philosophers of the period, Heraclitus looked for an answer to the problem which emerged with the idea that everything that happens must have a reason (causality) and then evolved into the idea that one of all these reasons determines all the reasons; this reason is the main essence behind everything, a main reason from which everything arises, a "substance", "main principle", "fundamental truth" (ontology) that determines everything. Since nothing can come into existence from nothing, this main substance must have a starting point, principle, and main substance for everything. Heraclitus' answer to this question made him the "father of dialectics[5]" (Hilav, 1997b) in its current meaning. Here, it is necessary to mention his "logos" doctrine which is shaped by the view that there is a unity behind opposites and an immutability behind changes. Because this view is his dialectical breaking point with today's understanding of "Marxist dialectics".

As I mentioned above, Heraclitus' main work is an attempt to answer the question of "existence". He started by researching what "essential existence" is, the "reality", the "main matter" that does not lose its unity in all these changes. According to the philosopher, the first and main substance of the universe is fire (Ağaoğulları, 2000; Kranz,1994). Fire is the first and only "real" basis of all "beings"; It is the unity of all opposites, It is the unity in which all opposites melt. From this point of view, it can be thought that his efforts are the same as those of all other philosophers and that he says the same thing as all the "main substances" that are said and mentioned (Water, Air, etc.) and nothing much has changed in him. However, his fundamental difference from the philosophers before him stems from the way he followed in proving this thesis. Of course, he put forward a "main substance", a "real cause", a "permanent substance" but he sees fire not as an unchanging substance like water and air of other

---

[5] 'It can be said that the word dialectic has acquired the following four main meanings in its adventure throughout the history of philosophy. 1. Originally (in Ancient Greece) and in its most general sense, the art of dialogue (mutual conversation) and discussion. 2. A certain way of reasoning and thinking. 3. "Formal Logic" (in the Middle Ages and Scholasticism) 4. The idea that change, formation, and progress occur through contradiction, both in thought and in existence, is the fundamental law of the universe and the method of examining entities. In the first three of these, something related to the subject and thought is expressed. The fourth, dialectics is considered as a law and method regarding both subject and thought, as well as existence'.

philosophers, but as changing, becoming, that is a process. Other philosophers considered that "main substance" to be permanent, self-identical, the only and true substance of nature and all existence. For them, this permanent substance was the most fundamental, the most important, this was the real physis, this was the real nature, and this was what remained unchanging (Gökberk, 2000).

The reason why Heraclitus chose fire is that fire is a force that constantly creates change where it emerges and changes everything it touches. According to him, the universe is a living fire, an endless burning process that covers all that exists. The extinguishing and re-ignition of fire are continuous successive periods, and the universe goes through these phases of burning, extinguishing, and rebirth. According to him, the universe is a continuous process, a change that has no beginning or end, and there is nothing that remains or continues in this never-ending change. "Fire", for example, when a flame burning a piece of wood is looked at closely, it can be seen that it is a longitudinal process. The flame burns the wood in a process, continuously turning it into smoke and mist. The universe is such an inexhaustible living fire, a periodic process that constantly burns (Kranz, 1994). This process continues endlessly, in turn, in order to be reborn. In summary, Heraclitus stated that nothing in the cosmos is static or permanent, and everything is in a process of existence, change, and transformation.

After Heraclitus stated that formation and existence originate from "fire", we mentioned that while proving this thesis, he made the view that everything is in a flow, change, and transformation the focal point of his philosophy. Now, it is necessary to draw attention to this foundation, which makes him the "father of dialectics" in the current sense for many. As mentioned above, according to our Philosopher, there is nothing in the universe that remains unchanged or uncorrupted, everything is in constant change, movement, and endless metamorphosis. "Everything flows. You cannot enter the same river twice, because each time you enter, different waters pass over it" (Kranz, 1994). Because of the water flow, the river has become a different river while we are in it, but in the meantime, we have also changed. ("The law of change"). This metamorphosis is nothing more than the same thing turning into its opposite. The visible becomes the invisible, the invisible becomes visible; The small feeds on the big, the big on the small. Light and darkness, good and evil, high and low, the beginning and the end are the same things (Kranz, 1994) ("Law of the unity of opposites"). The living will become dead, the dead will come to life. In fact, there is nothing other than "becoming". Becoming and changing are the result of the conflict of opposites. ("Law of conflict of opposites"). This constant change in the Cosmos is the product of the constant conflict of these opposites with each other. But as I mentioned before, these opposites are the same among themselves, and it is also the struggle of the opposites that ensures this. Therefore, in the universe, "war (polemos) is the ancestor and king of everything". To put it more clearly, everything is a harmony, a unit created by war's reconciliation of opposites (Ağaoğulları, 2000). When evaluated from here, one gets the impression of multiplicity when looking at the entities that appear in the dialectical process created by opposing forces. However, multiplicity in the universe is an "appearance" and its source is constant change and transformation (Ağaoğulları, 2000). Because all objects, all existence are derived from "one", that is, fire. Thus, Heraclitus introduced the understanding of unity in diversity, distinction, and opposition in unity, in philosophy. For example, death and birth are the same thing; Death is not an extinction, but a rebirth; what creates this is their war with each other (Kranz, 1994). Heraclitus determined this controversial opposition as the most basic and unchangeable feature of the universe and tried to show the immutability of the opposition. According to Heraclitus, who said, "We exist and we do not exist," there is a constant war or a conflict of opposites in the universe, and this conflict is what keeps the universe alive. His view that "everything was created by conflict" is not a view that states endless chaos; it is a view that explains harmony. In him, discord is dialectically balanced by harmony. Harmony is born with opposites or Opposites agree with

each other. Thus, even at that time, natural dialectics and logical dialectics presented completely different appearances (Timuçin, 1998).

According to him, the reason why we have the impression that there are "permanent" things before us is because this change and transformation is not without rules, but according to a certain order, a measure of law. This is what Heraclitus calls "logos". According to him, what rules the universe are law, order, and reason. It is an order of existence. "Eternal living fire" is not a "first, main substance", but a "logos", that is, a universal law, reason, principle, which is the principle of all individual existences, as well as the movements of the stars and the moral behavior of people. It is a unity behind opposites, a constancy behind changes. According to him, Change does not occur without obeying a rule or order; this rule that change obeys is logos, that is, reason. Logos gathers and organizes all that exists. Becoming and changing are based on this gathering force that is constantly active. Logos is a law of the universe that governs the universe and is also the true essence of human beings, their fundamental and distinctive feature. In Greek, Logos means "word", "speaking" and also "delivering thought". Heraclitus's Logos can be considered in the sense. Communication begins with speech and speaking, which is the trademark of the human species (zoon logon), and is one of the features that make it different (Umudum, 2023) in terms of Logos. Therefore, we can say that his philosophy is "Dialectical Idealism" rather than "Dialectical Materialism" (Şenel, 1997). Heraclitus constructed logos as an inherent unity that ensures the unification of opposites and the immutability behind changes and transformations. According to him, Logos is the "universal mind", the "divine mind" that ensures the general harmony of the universe. By saying this, Heraclitus in a sense approaches pantheism, that is, he identifies "god" with the world. This universal principle is the main basis of Heraclitus' philosophical system. The mind has to know and recognize this fundamental law and principle of the universe. A person who knows and learns Logos will take this law of reason in nature as a guide and measure for his actions, will, and morality in general (Kranz, 1994) From another perspective, the underlying idea of his thought that brings this reason to the fore lies in the assumption that people do not participate equally in logos (universal reason). According to him, people's sharing of this universal mind is not equal. The best, that is, the few, that is, the aristocrats, have received a greater share of this universal intelligence, and the others have received a smaller piece The masses who receive a small share from this universal law, which has a divine nature, are like dogs (Kranz, 1994) barking after something they do not know, and they should remain under the rule of philosophers, sages, "bests" (aristocrats) who know the "one" and participate in the universal mind according to Heraclitus.

Conclusion

Throughout history, humans, unlike other living things, not only continue their existence in society but also produce society. While producing society, they produce a series of intellectual structures, cultural and ideological fictions along with material life. These fictions are the result of philosophical thought that has been shaped over very long periods and they emerge with the contributions of great philosophers to human history. The philosophy of Heraclitus, which is the subject of this study, has a very important place in this system both its philosophical effects and contributions to the socio-political field by the way of the discussion of dialectics. Placing changing and flowing at the basis of the universe not only makes him different philosophically but also makes him noteworthy in his explanations of social life. Because he is the first thinker to say that change arises from contradictory realities. According to him, nothing remains identical with itself, everything changes, comes and goes, and different beings and forms appear and disappear one after another; from life comes death, and from death comes life. Looking at social life from this perspective makes it more understandable. He is the first thinker of today's dialectics, saying that everything arises only from the fight of opposites.

Non-existence gives rise to existence. Being and non-existence, being and not being, and living and dying are the same. If these were not the same things, they would not change and become each other; non-existence could not pass into existence, existence into non-existence, death into life, and life into death. For him, the beginning and the end meet at the same place within the circle (Hançerlioğlu, 1983). His philosophy accepts nothing as absolute. Therefore, within the logic of his philosophy, 'just as nothing can be denied absolutely, nothing can be adopted without imposing restrictions (Ağaoğulları, 2000). According to him, everything changes and must change. He influenced many philosophers (Stoics with the idea of Logos, hence "pantheism", Hegel, and later Marx, Bergson (Kranz, 1994) in terms of laying the foundations of Dialectics), arguing that existence is constantly changing, and the Sophists' conclusion that we cannot obtain definitive information about constantly changing existence (His philosophy contains within itself an understanding that may lead to skepticism) (Gökberk, 2000) makes him important in the history of philosophy. In addition, he has an important place in that he put forward one of the foundations of two fundamentally opposing (ontological) views on existence, which later occupied the entire history of philosophy. The main problem that faced Greek philosophy after Heraclitus and the Eleatic School was this: How does being emerge from being, how should one explain being from being? For now, let's put aside these questions that create deep philosophical debates and leave Heraclitus as the "father of dialectics".

KAYNAKÇA

Ağaoğulları, M. A. (2000). *Kent devletinden imparatorluğa.* (2. baskı). Ankara: İmge Yayınları.

Akarsu, B. (1984). *Felsefe terimleri sözlüğü*. (3. baskı). Ankara: Savaş Yayınları.

Childe, G. (1998). *Tarihte neler oldu*. (7. baskı). (Çev. Mete Tunçay &Alaeddin Şenel). İstanbul: Alan Yayıncılık.

Ercan, F. (2001). *Toplumlar ve ekonomiler*, (2. baskı). İstanbul: Bağlam Yayınları.

Gökberk, M. (2000). F*elsefe tarihi*. (12. baskı). İstanbul: Remzi Kitapevi.

Hançerlioğlu, O. (1983). *Düşünce tarihi*. (4. baskı). İstanbul: Remzi Kitabevi.

Hilav, S. (1997a). *Felsefe el kitabı*. (7. baskı). İstanbul: Gerçek Yayınevi.

Hilav, S. (1997b). *Diyalektik düşüncenin tarihi*. (3. baskı). İstanbul: Sosyal Yayınlar.

Ilin, M., Segal, E. (1995). *İnsan nasıl insan oldu*. (9. baskı). (Çev. Ahmet Zekerya). İstanbul: Say Yayınları.

Kranz, W. (1994).A*ntik felsefe*. (2. Baskı). (Çev. Suad Y. Baydur). İstanbul: Sosyal Yayınlar.

Magee, B. (2000). *Büyük filozoflar-platon'dan wittgenstein'a batı felsefesi*. (Çev. Ahmet Cevizci). İstanbul: Paradigma Yayınları.

Örnek, S. V. (1971). *İlkelerde din, büyü, sanat, efsane*. İstanbul: Gerçek Yayınevi.

Özlem, D. (1996). *Metinlerle hermeneutik (yorumbilgisi) dersleri cilt 1-2*. (2. baskı). İstanbul: İnkılap Kitapevi.

Özlem, D. (1999). *Siyaset, bilim ve tarih bilinci*. İstanbul: İnkılap Kitapevi.

Stace, W.T. (1976). *Hegel üstüne*. (Çev. Murat Belge). İstanbul: Birikim Yayınları.

Şenel, A. (1997). *İlkel topluluktan uygar topluma*. (5. baskı). Ankara: Bilim ve Sanat Yayınevi.

Şenel, A. (1999). *Siyasal düşünceler tarihi*. (8. baskı). Ankara: Bilim ve Sanat Yayınevi.

Timuçin, A. (1997). *Düşünce tarihi*. (2 baskı). İstanbul: İnsancıl Yayınları.

Timuçin, A. (1998). *Felsefe sözlüğü*. (2. baskı). İstanbul: İnsancıl Yayınları.

Umudum, H. E. (2023). Bilmecelerin yapıbozumu: alternatif bir okuma stratejisi. *Humanitas-International Journal of Social Sciences, 11*(22), 424-446. Doi: 10.20304/humanitas.1276518.

Investigation of the Opinions of the Students Studying at the Faculty of Sport Sciences Regarding the Distance Education Process

Fikret ALINCAK
Ö. Tarkan TUZCUOĞULLARI

INTRODUCTION

Education is the most important step in the development of society. As long as individuals continuously increase their level of knowledge and keep it up to date, they can play a role in the knowledge production of the society in which they live. This leads to the concept of lifelong education. Lifelong education, in fact, burdens the individual and paves the way for various problems. Since the personal development needed by the working individual cannot be met through formal education, different approaches are needed. The model that can meet this need can be named as distance education. Distance education is the gathering of teachers, students and materials that are not in the same environment in a common educational environment thanks to communication technologies (Işık & Güler, 2008).

Expectations and needs are changing rapidly due to the rapid change and transformation in the world, and the value attached to education and the demand for education are increasing due to the need to adapt to scientific, social and individual phenomena (Çelik, 2016; Yurdakul, 2015). Education has always been an important need for human beings. The inability of existing facilities and human resources to meet the increasing demand for education has made this need more comprehensive and urgent today (Şad, Göktaş, & Bayrak, 2014). In order to meet this need, distance education has been widely used in recent years with the spread of the Internet (Larreamendy-Joerns & Leinhardt, 2006). With the development of distance education technologies, the use of these technologies in formal education is increasing (Austin, 2009; Liu, 2012). Distance education is defined as a web-based education system offered over a platform with internet/intranet or computer network (Tuncer & Tanaş, 2011). The role of the teacher in distance education, unlike traditional face-to-face education processes, requires the role of an expert who creates appropriate learning conditions for students at the center of the education system and facilitates the distance education process (Yurdakul, 2015). In this direction, the aim of distance education is to provide a suitable time and place for the student rather than the teacher or the educational institution (Moore & Kearsley, 2011).

Developments, events and situations in recent years affect scientific and technological activities, as well as the way of life of humanity. As a matter of fact, the COVID-19 (Coronavirus) pandemic, which emerged in early 2019, has affected people's lifestyles and caused a number of interventions and practices in all fields. The COVID-19 pandemic has affected the fields of health, economy, sociology, etc., as well as the field of education. Distance education, which came to the forefront in the field of education during the pandemic, is at the forefront of these practices. Distance education was not widely used in the field of educational sciences, but its application examples were limited to some activities such as compulsory courses, seminars and conferences in some universities. However, with the pandemic process, distance education has taken its place at all levels of education. However, in distance education applications, the lack of readiness of teachers and students for distance education has caused

problems such as the impossibility of distance education infrastructure (Burke & Dempsey, 2020).

There are many definitions in the literature on the concept of distance education, which has become widespread. Distance education is a method in which the education and training process is carried out through mass media (computer, tablet, telephone and television) (Cabı & Ersoy, 2017). As a matter of fact, the cultural values of the society are affected and changed thanks to online technologies that the society rapidly accepts (Bayrak, Aydemir, & Karaman, 2017). Valentine (2002) defines distance education as a teaching method based on the active use of information technologies for facilitating learning and conducting lessons due to the fact that students and teachers are in different places in terms of time and space. Distance education is a learning and teaching process in which the teacher and the learner are not in the same place and communication is provided by technology and applied in an organized manner by an organization (Moore & Kearsley, 2012).

Altıparmak (2011) defines distance education as a planned and designed comprehensive learning activity that offers many learning activities to its users by developing special communication methods that eliminate time and space boundaries with electronic or non-electronic tools. Karakuş, Ucuzsatar, Karacaoğlu, Esendemir, and Bayraktar (2020) define distance education as enabling education and training activities to be carried out without physical communication between the learner and the teacher, thanks to the technological features of tools such as computers, mobile phones, tablets, and televisions.

In another definition, it is defined as "an education system model in which teachers and students do not have to be in the same place and educational activities are carried out through postal services and information communication technologies" (Çakır, Calp, Doğan, 2015: 2). Distance education has been developed in many countries in order to reduce education to all levels, to reduce the educational costs of educational institutions, to reach masses at great distances from each other, to offer education to students who cannot be physically present in the learning environment and to enable students to learn at individual learning speed (Frank, Reich, Humphreys as cited in Menderis, 2014).

Distance education is an education system that facilitates learning and develops high-level thinking skills by using video, audio and various digital visual materials (Arslan, Arı, & Kanat, 2021). Distance education has taken its place in education with the opportunities provided by information and communication technologies (Clark, 2020). Distance education is seen as advantageous compared to traditional methods in terms of bringing education services to wider masses, ensuring equality of opportunity and opportunity in education, being easily updatable according to individual needs, reducing education costs, benefiting from experts in different places and being learner-centered (Şen, Atasoy & Aydın, 2010; Mupinga, 2005; Cavanaugh, 2001). In the shortest definition, distance education is an economical and interactive education model that is realized by utilizing information and communication technology tools and equipment regardless of time and place (Gökçe, 2008).

With the use of technology, which has become a part of daily life, distance education activities, which continue by increasing their effectiveness and efficiency with tools such as internet, television and computerized education, started for the first time with written sources such as newspapers and mail (Özbay, 2015). In this way, distance education allows people who cannot benefit from traditional education and who cannot spare time for personal and educational development to be included in the education system and to work individually (Özyürek, Bedge, Yavuz & Özkan, 2016; İnan, 2013; Newby, Stepich, Lehman & Russel, 2006).

With the pandemic process, the transition to distance education started rapidly. In this process, limited technology services made it difficult for teachers to provide meaningful feedback and interact directly with their students (Marshall, Shannon, & Love, 2020). Therefore, it can be said that COVID-19 prevented teachers and students from making a normal transition to distance education under extraordinary circumstances and provided new experiences.

As a quick solution to the crisis caused by the COVID-19 pandemic, educational institutions structured according to face-to-face education started to work urgently to continue courses and programs with web-based distance education instead of face-to-face education and quickly switched to distance education (Gewin 2020; Lau, Yang, & Dasgupta, 2020). Since this transition was carried out very quickly, no assessment could be made for teachers as well as students to adapt to the requirements of distance education (Iyer, Aziz, & Ojcius, 2020).

As in other fields in Turkey, the Faculties of Sport Sciences of universities have also switched to distance education system. In the faculties of sport sciences, it is seen that applied courses are intensive in the course contents of the physical education and sports teaching department and coaching department (Fakazlı & İlhan, 2021). In this process, it is predicted that both students experience various problems in acquiring the outcomes of applied courses and academicians experience various problems in providing these outcomes to students. Kırbaş (2020) also stated that all courses in sports sciences faculties are tried to be given through this system, but it causes various disruptions in the functioning of applied courses. In this sense, he emphasized that in order for physical education teachers to teach a skill, they must first learn the skills with active participation both theoretically and practically. In summary, it is thought that an in-depth examination of the experiences of the academicians who teach both theoretical and practical courses in the faculties of sport sciences of universities, their views on distance education and the problems they encounter is very important in terms of the quality of education.

The aim of this study is to determine the opinions of the students studying at the Faculty of Sport Sciences about the distance education courses and practices implemented in our country. In addition, it is aimed that the data to be collected about the opinions of the students will give direction to the distance education applications to be carried out in the future. In this context, answers to the following questions were sought.

1. What are the opinions of the students about the distance education process?

2. What are the opinions of the students about whether they have received distance education before.

3. What are the opinions of the students about what kind of problems they encounter in the distance education process?

4. What are the opinions of the students about the negative aspects of the distance education process?

5. What are the opinions of the students about the positive aspects of the distance education process?

6. What are the students' suggestions regarding the distance education process?

METHOD

Interview method, which is one of the qualitative research methods, was used in the study. Qualitative research is a method that offers the researcher more flexibility than quantitative research and offers different approaches to data collection, analysis and research design (Gay,

Mills, & Airasian, 2006). Qualitative research is defined as research in which qualitative data collection methods such as observation, interview and document analysis are used and a qualitative process is followed to reveal perceptions and events in a realistic and holistic way in a natural environment. Qualitative research is an approach that emphasizes investigating and understanding social phenomena within their environment with an understanding based on theorizing (Yıldırım & Şimşek, 2013). The interview method is prepared to obtain the same type of information from different people by focusing on similar topics (Patton, 1987:111; cited in Yıldırım & Şimşek, 2013).

Research Group

In the research, the opinions of the students studying at the Faculty of Sport Sciences on the distance education process were examined. For this purpose, the study group of the research consists of students studying at Gaziantep University Faculty of Sport Sciences. In the selection of the study group, maximum diversity sampling, one of the purposeful sampling methods, was used. According to Yıldırım and Şimşek (2013), the aim is to create a relatively small sample and to reflect the diversity of individuals who may be parties to the problem being studied in this sample to the maximum extent. The number of physical education teachers in the sample group in this study was determined as 20. The data about the research group are given in Table 1.

Table 1: *Personal Characteristics of the Research Group (n= 20)*

Variables Groups	Variables Groups	n	%
Gender	Male	12	60
	Woman	8	40
Class of Study	1	4	20
	2	4	20
	3	7	35
	4	5	25
Department of Education	Physical education and sports teaching	10	50
	Coaching education	5	25
	Sports management	5	25

When Table 1 is analyzed, 60% of the participants were male students and 40% were female students. Accordingly, the majority of the participants were male students. When we examine the grade level of the participants; 20% of the participants are studying in the first grade, 20% in the second grade, 35% in the third grade, and 25% in the fourth grade. When we look at the type of department in which the participants are studying; 50% of the participants are studying in the department of physical education and sports teaching, 25% in the department of coaching education, and 25% in the department of sports management. married. Accordingly, the majority of the participants are studying in the department of physical education and sports teaching.

Preparation and Implementation of the Open-Ended Questionnaire

In the study, a semi-structured interview form consisting of 6 items was used to collect qualitative data. Through the interview technique, which is frequently used in qualitative research, the researcher tries to understand unobservable situations such as attitudes, experiences, intentions, thoughts, mental perceptions, interpretations and reactions (Yıldırım & Şimşek, 2013:148). In order to prepare the interview form, a comprehensive literature review was conducted and an interview form was prepared. While preparing the semi-structured interview form used as a data collection tool, the researcher first conducted a literature review and created a semi-structured interview form question pool with questions that could be asked to students about the subject. Then, the questions were examined by three experts and the semi-structured interview form was finalized. None of the participants included in the study were forced to participate in the research, and the principle of confidentiality was carefully observed during the application and collection of the questionnaires. The interviews were recorded with a voice recorder and then these recordings were transcribed.

Data Collection

Qualitative research data were collected from 20 students studying at Gaziantep University, Faculty of Sport Sciences. One-on-one and face-to-face interviews were conducted with all participants. Interviews were conducted with those who voluntarily wanted to participate in the research and by obtaining permission for the place and time they deemed appropriate for themselves. A recording device and note-taking technique were used to record the interviews. The interviews lasted between 15 minutes and 45 minutes.

Data Analysis

The data obtained from the interview form used in the study were recorded with a voice recorder. After the application, the qualitative data in the audio recordings including the answers of the physical education teachers were transferred to the computer environment by the researcher. Qualitative data were then analyzed by content analysis method. The frequently used content analysis technique was used to analyze the data obtained from the questions in the interview form. The aim is to reach concepts that can explain the collected data (Yıldırım and Şimşek, 2013:259).

The steps followed are as follows;

Collection of research data

Coding of data

Creation of themes

Organizing the data according to codes and themes

Interpretation of findings

FINDINGS AND COMMENTS

This section presents the findings related to the data obtained after the interviews with the study group.

Table 2. Distribution of students' views on the distance education process.

Themes	n	%
Efficient and beautiful application	16	16.7
Convenient and easy implementation	15	15.7
A different learning environment	14	14.7
An application that enables effective use of technology	13	13.5
Education on the computer	13	13.5
A flexible learning environment	12	12.6
An anxiety-inducing process	9	9.3
An inefficient application	4	4.1
Total	**96**	**100**

When the opinions of the students on the distance education process are examined in Table 2, 16.7% of the majority stated that it was an efficient and beautiful application, 15.7% stated that it was a comfortable and easy application, and 14.7% stated that it was a process that provided a different learning environment. In addition, 13.5% of the students who participated in the research stated that the distance education process is an application that enables effective use of technology and education on the computer. Some participants expressed that the distance education process is a learning environment that provides flexibility and a process that creates anxiety. 4 students stated that it was an inefficient practice. It was observed that the participants expressed more than one opinion.

Table 3. Distribution of students' views on whether they have received distance education before.

Themes	n	%
I didn't buy it	13	48.2
Got it	7	25.9
I took courses	7	25.9
Total	**27**	**100**

When the opinions of the students participating in the study on whether they had received distance education before are analyzed in Table 3, 48.2% of them stated that they had not received any education. In addition, 25.9% of the students participating in the study stated that they had received training before and received distance education in courses. It was observed that the participants expressed more than one opinion.

Table 4. Distribution of students' views on what kind of problems they face in the distance education process.

Themes	N	%
Lack of communication	17	21.6
Internet problem	14	17.8
Infrastructure is not fully formed	14	17.8
Low participation	12	15.2
Attention deficit	10	12.6
Some classes are inefficient	6	7.5
Not understanding some lessons	6	7.5
Total	**79**	**100**

When the opinions of the students participating in the study on what kind of problems they encountered in the distance education process are examined in Table 4, 21.6% of them stated that they had problems due to lack of communication, 17.8% due to internet problems, and 17.8% due to the infrastructure not being fully formed. In addition, 15.2% of the students participating in the study stated that there was a lack of participation and 12.6% stated that there was a lack of attention. In addition, 6 students participating in the study stated that they had problems because some lessons were inefficient and they could not understand some lessons. It was observed that the participants expressed more than one opinion.

Table 5. Distribution of students' views on the negative aspects of the distance education process.

Themes	N	%
Inefficient applied courses	18	25.4
Lack of communication	16	22.6
Technical problems	14	19.7
Monotonous course	11	15.4
No question and answer	7	9.8
Friends do not pay attention to the lesson	5	7.1
Total	**71**	**100**

When the opinions of the students participating in the study on the negative aspects of the distance education process are analyzed in Table 5, 25.4% of them stated that the applied courses were inefficient and 22.6% stated that there was a lack of communication. In addition, 19.7% of the students stated that there were technical problems and 15.4% stated that the course was monotonous. In addition, regarding the negative aspects of the distance education process; 7 students stated that there was no question-answer and 5 students stated that their friends did not attach importance to the course. It was observed that the participants expressed more than one opinion.

Table 6. Distribution of students' views on the positive aspects of the distance education process

Themes	N	%
Ability to use technology effectively	17	20.5
Watch the lecture again	15	18.1
Easy access to resources related to the course	15	18.1
A comfortable learning environment	15	18.1
Using time efficiently	12	14.4
Providing a different learning environment	9	10.8
Total	**83**	**100**

When the opinions of the students participating in the study on the positive aspects of the distance education process are examined in Table 6, 20.5% of the majority stated that it provided the ability to use technology effectively, while 18.1% stated that it provided the opportunity to watch the course again, to access the resources related to the course easily and to provide a comfortable learning environment. In addition, some of the students who participated in the research stated that it provides efficient use of time and a different learning environment. It was observed that the participants expressed more than one opinion.

Table 7. Distribution of students' suggestions regarding the distance education process

Themes	N	%
Practical courses should be face-to-face	18	31.1
Internet access could be healthier	16	27.6
Infrastructure can be healthier	16	27.6
Lessons can be uploaded to the system more regularly	8	13.7
Total	**58**	**100**

When the suggestions of the students participating in the study regarding the distance education process are examined in Table 7, almost all of them, 31.1%, stated that applied courses should be face-to-face. In addition, 27.6% of the students suggested that internet access could be healthier and infrastructure could be healthier. 8 students suggested that the courses should be entered into the system more regularly. It was observed that the participants expressed more than one opinion.

DISCUSSION and CONCLUSION

In this part of the study, the results obtained depending on the findings obtained with the aim of examining the opinions of the students studying at the Faculty of Sport Sciences regarding the distance education process are given.

When we look at the opinions of the students participating in the research regarding the distance education process, 16.7% of the majority stated that it was an efficient and beautiful application, 15.7% stated that it was a comfortable and easy application, and 14.7% stated that it was a process that provided a different learning environment. In addition, it was seen that the students participating in the research stated that the distance education process is a process that enables effective use of technology and that it is an education process on the computer. It was also seen that the distance education process is a learning environment that provides flexibility and a process that creates anxiety. From this point of view, in general, we can say that students have a positive attitude towards the distance education process and that they have gained new technological knowledge. In Bakioğlu and Çevik's (2020) study, it was found that students' fear and anxiety increased with the pandemic and their motivation was low. According to Çetin et al. (2004), the limited useful interaction between students, teachers and peers in distance education may cause a lack of motivation. In different studies, it has been observed that the uncertainty of the process and self-protection anxiety make it difficult for students to focus on their lessons and affect them psychologically negatively (Cao et al., 2020; Lee, 2020; Wang et al., 2020).

When we look at the opinions of the students participating in the study on whether they have received distance education before, it is seen that 48.2% of them have not received any education before. In addition, it was seen that some of the students participating in the study had previously received training on the subject and received training in courses. In line with the opinions expressed by the students, we can say that although some of them have received training on distance education before, it would be beneficial to provide training or courses on the process.

When we look at what kind of problems the students who participated in the study encountered in the distance education process, it is seen that they mostly experience problems due to lack of communication, internet problems and the lack of infrastructure. In addition, the students who participated in the study had problems due to low participation in the lessons, lack of attention, inefficiency in some lessons and not understanding some lessons. Therefore, it can be said that the distance education process is the first time and students have problems because they are unfamiliar with the system. Karakuş et al. (2020) concluded in their study that providing communication only through a technical tool in the distance education process negatively affects course communication and social skills of pre-service teachers. In a similar study, it was concluded that since effective communication could not be established between teachers and students, permanent learning could not be achieved in the distance education process (Sığın, 2020). In the studies conducted in the literature, it is stated that teachers and students face internet and computer insufficiency and technical problems in technology during the distance education process (Özdoğan & Berkan, 2020).

Kürtüncü and Kurt's (2020) research on the problems experienced by nursing students in distance education during the COVID-19 pandemic, the majority of the students participating in the study stated that they had problems with the infrastructure of universities related to distance education and internet access. In a different study, reasons such as "distance education", "psychological impact", "limited opportunities in internet access" are stated as the issues that students experience the most problems in this process (Wang et al., 2020).

When the opinions of the students participating in the research on the negative aspects of the distance education process were analyzed, 25.4% of them stated that the applied courses were inefficient and 22.6% stated that there was a lack of communication. In addition, students stated that there were technical problems and that the course was monotonous. In addition, regarding the negative aspects of the distance education process, there was an opinion that there was no question-answer and that some students in the class did not attach importance to the lesson. From this point of view, we can say that students approach the distance education process negatively for different reasons. Gewin (2020) and Attri (2012) emphasize that communication channels should be used to make students active in distance education and to ensure student-teacher, student-student interaction and to increase in-class interaction.

Similarly, Kuş, Mert, and Boyraz (2021) defined distraction in distance education as one of the negative effects of this process. In addition, researchers such as (Garbe et al., 2020; Özdoğan & Berkant, 2020) drew attention to the problem of motivation in distance education. In Doğan and Tatık's (2015) study, it was determined that student opinions were mostly negative, and the main factors causing this negativity were the lack of technical-technological support for students and the lack of feedback such as e-mail and telephone.

In their study, Karal, Çebi, and Turgut (2011) observed that the factors of "technical problems, teacher, environment, course and distance" changed the perceptions of pre-service teachers towards distance education, that technical problems were the most important factor affecting students' perceptions, that students had negative perceptions towards distance education due to technical errors such as freezing, interruption and echoing of the sound during the lessons, and that students were bored and distracted during long distance education lessons.

When the opinions of the students participating in the study on the positive aspects of the distance education process are examined, the majority of 20.5% stated that it provides the ability to use technology effectively. In addition, the students participating in the study expressed their opinions on the positive aspects of the process; re-watching the course, easy access to resources related to the course and a comfortable learning environment. In addition, some of the students stated that it was an opportunity to use time efficiently and that it was a different learning environment. Based on these opinions, we can say that students generally view the distance education process positively in many respects. Andoh et al. (2020), in their study on the evaluation of distance education on university students, revealed that the prominent student opinion on distance education is the more effective use of technological opportunities.

In another study, De Paepe et al. (2018) determined the aspects that seem advantageous in the evaluation of distance education as the use of technology and the increase in skills and awareness developed in this regard. DeNeui and Dodge (2006) found that the biggest advantage of distance education is that it is independent of time and space; Horspol and Lange (2012) found that the most important advantageous aspects of distance education are spatial convenience, time savings in terms of home and school commuting, and the ability to provide high quality communication with online platforms and the ease of learning environmentally.

In a study conducted on lecturers in Turkey, Koç (2020) found that the prominent advantage of distance learning for students is the ease of access to distance education. In another study conducted with faculty members in Turkey, Alpaslan (2020) stated that the advantageous

points stated by faculty members regarding distance education are related to features such as distance education being practical and flexible, being independent of time and space, and providing diversity in access to information. Yolcu (2020) found that the advantages of distance education for students are that the courses can be watched over and over again and can be followed in a comfortable environment.

When we look at the suggestions of the students participating in the research regarding the distance education process, it was seen that almost all of them stated that the applied courses should be face-to-face, while they suggested that internet access should be healthier and the infrastructure should be healthier. Some students suggested that the courses should be entered into the system more regularly. In a master's thesis by Turgut (2011), students' negative opinions about technical problems and interaction were revealed and some suggestions were made to solve this situation. Accordingly, it was emphasized that in order to ensure effective learning in the lessons and to prevent disengagement from the lesson due to technical problems in the lesson, technical problems should be solved and students should be able to participate in the lesson comfortably, and in order to maximize the interaction of the instructors, they should include methods such as question-answer methods other than the lecture method and draw students into the lesson. In order to eliminate inequality in this process, which is defined as the digital divide by the OECD, it is necessary to strengthen the infrastructure, expand access to information and communication technologies and develop individuals in this regard (Öztürk, 2005).

As a result, while the students studying at the Faculty of Sport Sciences stated that the distance education process is an efficient and beautiful application, they also stated that it is a comfortable and easy application and that it is a process that provides students with a different learning environment. It is seen that they have problems due to lack of communication, internet problems and lack of infrastructure. At the same time, the students who participated in the study expressed their opinions on the positive aspects of the process; re-watching the course, easy access to resources related to the course and a comfortable learning environment. In addition, when we look at the suggestions of the students regarding the distance education process, it was seen that almost all of them stated that the applied courses should be face-to-face, while they suggested that internet access should be healthier and the infrastructure should be healthier.

Suggestions

In-service training seminars on the distance education process can be organized.

Similar studies can be conducted with prospective teachers in all branches and the results of the study can be compared between branches.

Different alternatives can be developed for applied courses.

Psychological support can be provided for pre-service teachers to cope with anxiety.

Considering that students face problems in using information technologies, preparing and making presentations, and using the Internet for educational purposes, students should be provided with adequate educational support in this regard.

Studies should be carried out to eliminate the victimization of students in settlements where there is no internet infrastructure.

Students' general views on distance education can be examined in terms of profiles with different demographic characteristics.

REFERENCES

1. Alpaslan, M. (2020). Öğretim üyelerinin özel yeteneklilerin eğitiminde uzaktan eğitimin kullanımına yönelik görüşleri. Açıköğretim Uygulamaları ve Araştırmaları Dergisi, 6(1), 126-147.

2. Altıparmak, M. (2011). E-öğrenme ve uzaktan eğitimde açık kaynak kodlu öğrenme yönetim sistemleri. Malatya: Akademik Bilişim'11 - XIII. Akademik Bilişim Konferansı Bildirileri Kitabı, 319-327.

3. Andoh, R.P.K., Appiah, R., & Agyei, P.M. (2020). Postgraduate distance education in University of Cape Coast, Ghana: Students' perspectives. International Review of Research in Open and Distributed Learning, 21(2), 118-135.

4. Arslan, K., Arı, G., & Kanat, M. (2021). Covid-19 Pandemi Sürecinde Verilen Uzaktan Eğitim Hakkında Veli Görüşleri. Ulakbilge, 192-206.

5. Attri, K. (2012). Distance education: problems and solutions. *International Journal of Behavioral Social and Movement Sciences*, *1*(4), 42-58.

6. Austin, E. K. (2009). Limits to technology-based distance education in MPA curricula. Journal of Public Affairs Education, 161-176.

7. Aydın Menderis, İ. (2014). İngiltere Open University Ile Avustralya New England University'de Yüksek Öğretimde Uzaktan Eğitim Yönetiminin Karşılaştırılması ve Türkiye Için Bir Model Önerisi. Eskişehir Osmangazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Yüksek Lisans Tezi, Eskişehir.

8. Bakioğlu, B., & Çevik, M. (2020). COVID-19 Pandemisi Sürecinde Fen Bilimleri Öğretmenlerinin Uzaktan Eğitime İlişkin Görüşleri. *Electronic Turkish Studies*, 15(4).

9. Bayrak, M., Aydemir, M. ve Karaman, S. (2017). Uzaktan eğitim öğrencilerinin öğrenme stilleri ve doyum düzeylerinin incelenmesi. Çukurova Üniversitesi Eğitim Fakültesi Dergisi, 46, (1), 231 -263

10. Burke, J.,& Dempsey, M. (2020). COVID-19 Practice in primaryschools in Ireland report. National University of Ireland Maynooth, Ireland.

11. Cabı, E., Ersoy, H. (2017). Yükseköğretimde uzaktan eğitim uygulamalarının incelenmesi: Türkiye örneği. Yükseköğretim ve Bilim Dergisi, 7(3), 419-429.

12. Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. Psychiatry Research, 287, 112934.

13. Cavanaugh, C.S. (2001). "The effectiveness of interactive distance education technologies in K-12 learning: A meta- analysis", International Journal of Educational Telecommunications, S 7(1), ss. 73-88.

14. Clark, J.R. (2020). Distance education. Clinical Engineering Handbook, Ed: Ernesto Iadanza. Academic Press, Floransa-İtalya.

15. Çakır, Ö., Calp, M. H., Doğan, A. Uzaktan Eğitimde Içerik Geliştirme Süreci: Gazi Üniversitesi Bilişim Enstitüsü Örneği. Cumhuriyet Uluslararası Eğitim Dergisi (2015). 4(1), 1-20.

16. Çelik, F. (2016). Comparing distance education versus traditional education in Engineering Management Masters Program: Sakarya University Sample. IFACPapersOnLine, 49(29), 305-309.

17. Çetin, Ö., Çakıroğlu, M., Bayılmış, C., & Ekiz, H. (2004). Teknolojik Gelişme İçin Eğitimin Önemi Ve İnternet Destekli Öğretimin Eğitimdeki Yeri. *The Turkish Onlie Journal of Educational Technology*, 3(3),144-147.

18. De Paepe, L., Zhu, C., & DePryck, K. (2018). Drop-out, retention, satisfaction and attainment of online learners of Dutch in adult education. International Journal on E-Learning, 17(3), 303-323.

19. Deneuı, D., & Dodge, T. (2006). Asynchronous Learning Networks and Student Outcomes: The Utility of Online Learning Components in Hybrid Courses. Journal of Instructional Psychology, 33(4), 256-259.

20. Doğan, S., & Tatık, R.Ş. (2015). Evaluation of distance education program in MarmaraUniversity according to the views of students. Route Educational and Social Science Journal, 2(1), 247-261.

21. Fakazlı, A.E., İlhan, E.L. (2021). Türkiye'de beden eğitimi ve spor öğretmeninin rol çatışması: Öğretmenlik mi? Antrenörlük mü? Journal of Human Sciences, 18(1), 48-66.

22. Garbe, A., Ogurlu, U., Logan, N. ve Cook, P. (2020). COVID-19 and remote learning: Experiences of parents with children during the pandemic. American Journal of Qualitative Research, 4(3), 45-65.

23. Gay, L., Mills, G., Airasian, P. (2006). Educationalresearch: Competenciesfor Analysis And Application. New York: Prenticehall.

24. Gewin, V. (2020). Five tips for moving teaching online as covid-19 takes hold. *Doğa, 580,* (7802), 295-296.

25. Gökçe Toker, A. (2008). "Küreselleşme Sürecinde Uzaktan Eğitim", Dumlupınar Üniversitesi Eğitim Fakültesi Dergisi, S 11, ss. 1-12.

26. Horspool, A., & Lange, C. (2012). Applying the scholarship of teaching and learning: Student perceptions, behaviours and success online and face-to-face. Assessment & Evaluation in Higher Education, 37(1), 73-88.

27. Işık, A.H., Güler, İ. (2008). Uzaktan eğitimde üç boyutlu web teknolojilerinin kullanılması. Bilişim Teknolojileri Dergisi, S:2 s:75.

28. Iyer, P., Azız, K., Ojcıus, D.M. (2020). "Impact of COVID-19 on dental education in the United States", Journal of Dental Education, S 84(6), ss. 718-722.

29. İnan, C. (2013). Dicle üniversitesi öğretim üyelerinin uzaktan eğitim konusundaki görüşlerinin değerlendirilmesi. Elektronik Eğitim Bilimleri Dergisi, 2(4), 66-73.

30. Karakuş, N., Ucuzsatar, N., Karacaoğlu, M. Ö., Esendemir, N. & Bayraktar, D. (2020). Türkçe öğretmeni adaylarının uzaktan eğitime yönelik görüşleri. RumeliDE Dil ve Edebiyat Araştırmaları Dergisi, (19), 220-241.

31. Karal, H., Çebi, A., & Turgut, Y. E. (2011). Perceptions of students who take synchronous courses through video conferencing about distance education. The Turkish Online Journal of Educational Technology-TOJET, 10(4), 276-293.

32. Kırbaş, S. (2020). The views of physical education and sports teaching instructors on education in the Covid -19 period. Journal of Education and Learning, 9(6), 196-205.

33. Koç, E. (2020). An evaluation of distance learning in higher education through the eyes of course ınstructors. Akdeniz Üniversitesi Eğitim Fakültesi Dergisi, 3(1), 25-39.

34. Kuş, Z.; Mert, H.; Boyraz, F. (2021). Covıd-19 Salgını Süresince Eğitimde Fırsat Eşit (Siz) Liği: Kırsal Kesimdeki Öğretmen Ve Ebeveyn Görüşleri. Eğitim Teknolojisi Kuram ve Uygulama, 11(2), 470-493.

35. Kürtüncü, M., Kurt, A. (2020). COVID-19 pandemisi döneminde hemşirelik öğrencilerinin uzaktan eğitim konusunda yaşadikleri sorunlar. Avrasya Sosyal ve Ekonomi Araştırmaları Dergisi, 7(5), 66-77.

36. Larreamendy-Joerns, J., & Leinhardt, G. (2006). Going the distance with online education. Review of educational research, 76(4), 567-605.

37. Lau, J., Yang, B., & Dasgupta, R. (2020). Will the coronavirus make online education go viral. Times Higher Education.

38. Lee, J. (2020). Mental health effects of school closures during Covid-19. The Lancet Child and Adolescent Health, 395, 912–20.

39. Liu, O.L. (2012). Student evaluation of instruction: In the new paradigm of distance education. Research in Higher Education, 53(4), 471-486.

40. Marshall, D. T., Shannon, D. M., & Love, S. M. (2020). How teachers experienced the COVID-19 transition to remote instruction. Phi Delta Kappan, 102(3), 46-50.

41. Moore, M. ve Kearsley, G. (2012). Distance education: a system view of online learning. Wadsworth. Cengage Learning

42. Mupınga, D.M. (2005) "Distance education in high schools: Benefits, challenges, and suggestions, the clearing house", A Journal of Educational Strategies, Issues and Ideas, S 78(3), ss. 105-109.

43. Newby, T. J., Stepich, D. A., Lehman, J. D., & Russell, J. D. (2006). Instructional technology for teaching and learning: Designing instruction, integrating computers and using media (Third edition). Englewood Cliffs, NJ: Prentice-Hall.

44. Özbay, Ö. (2015). Dünyada ve Türkiye'de uzaktan eğitimin güncel durumu. Uluslararası Eğitim Bilimleri Dergisi, (5), 376-394.

45. Özdoğan, A. Ç., & Berkant, H. G. (2020). Covid-19 pandemi dönemindeki uzaktan eğitime ilişkin paydaş görüşlerinin incelenmesi. Milli Eğitim Dergisi, 49(1), 13 43.

46. Öztürk, L. (2005). Türkiye'de dijital eşitsizlik: Tübitak-bilten anketleri üzerine bir değerlendirme. Erciyes Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 24, 111-131.

47. Özyürek, A. , Begde, Z. , Yavuz, N. F. & Özkan, İ. (2016). Uzaktan Eğitim Uygulamasının Öğrenci Bakış Açısına Göre Değerlendirilmesi. Karabük Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 6 (2), 595-605.

48. Sığın, S. (2020). Atatürk İlkeleri ve İnkılap Tarihi dersinin uzaktan eğitim yoluyla verilmesi konusunda öğrenciler ve öğretim elemanları ne düşünüyor? Tek durumlu bir örnek olay çalışması. Yüksek Lisans Tezi, Adnan Menderes Üniversitesi. Aydın.

49. Şad, S. N., Göktaş, O., & Bayrak, I. (2014). A comparison of student views on Web-based and face-to-face higher education. Turkish Online Journal of Distance Education, 15(2), 209-226.

50. Şen, B., Atasoy, F., Aydın, N. (2010)." Düşük maliyetli web tabanlı uzaktan eğitim sistemi uygulaması". XII. Akademik Bilişim Konferansı Bildirileri, Muğla Üniversitesi, Muğla.

51. Turgut, Y. E. (2011). Video Konferans Yoluyla Verilen Derslerde Verimliliğe Etki Eden Faktörler. Yüksek Lisans Tezi, Karadeniz Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Trabzon.

52. Wang, C., Cheng, Z., Yue, X.-G., & McAleer, M. (2020). Risk Management of COVID-19 by universities in China. Journal of Risk and Financial Management, 13(2), 36.

53. Yıldırım, A. ve Şimşek, H. (2013). Sosyal Bilimlerde Nitel Araştırma Yöntemleri. Ankara: Seçkin Yayınevi,9.baskı.

54. Yolcu, H. (2020). Koronavirüs (covid-19) pandemi sürecinde sınıf öğretmeni adaylarının uzaktan eğitim deneyimleri. Açıköğretim Uygulamaları ve Araştırmaları Dergisi, 6(4), 237-250.

55. Yuen-Fun, I.W. (1991) Toward an Agenda for Helping the Beginning Teacher: Perceptions of Concerns and Best Help Strategies, Paper presented at the Annual Conference of the Eastern Educational Research Association, Boston, MA.

56. Yurdakul, B. (2015). Uzaktan eğitim. Demirel, Ö. (ed.) Eğitimde Yeni Yönelimler içinde (s.271-288), Ankara: PegemAkademi.

The Predictive Level of Empathic Tendency and Subjective Well-Being on Counseling Skills[1]

Faruk Yıldırım[2]
Firdevs Savi Çakar[3]

1. Introduction

1.1. Psychological Counseling

The American Psychological Association (APA, 1999) defines professional counseling as "the application of mental health, psychology, and developmental principles through cognitive, affective, behavioral, and interactional intervention strategies to address an individual's well-being, personal professional development, and pathology." Although counseling was born in recent times with many helping professions in America, there are five themes that distinguish psychological counseling from other helping professions. These include: Focusing on normal individuals; focusing on the discovery of the strengths and gains of the clients; emphasizing that the process is as effective and short as possible; taking into account the environment-human interaction; and taking into account the professional and educational development of the clients (Carkhuff, 2011).

In psychological counseling, the counselor needs an understanding of counseling, counseling techniques, and most importantly, counseling skills that enable him to communicate with the client. Counseling skills play a key role in conveying the psychological counselor's empathy, respect, acceptance, interest and transparency towards the client. Counseling skills are necessary because they form the basis of effective communication, regardless of the purpose and method of counseling (Burnard, 1992). In other words, psychological counseling skill is the ability to apply methods, techniques and stages that will enable clients to express themselves easily, to look at the problems they experience objectively, to find solutions to their problems and to mobilize the clients (Egan, 1975). Reviewing the literature, it can be seen that psychological counseling skills consist of skills such as empathy, minimum encouragement, content reflection, emotion reflection, personalization, attitude based on respect and acceptance, structuring, close attention, transparency, self-disclosure, summarizing, confronting, contextuality, concreteness, silence and sharing (Voltan Acar, 2015; Nelson Jones, 2014; Egan 1975; Corey, 2008; Carkhuff, 2011; Sharf, 2014).

1.2. Psychological Counseling Skills

Psychological counseling skills are the combination of basic and advanced communication skills and therapeutic skills that a psychological counselor uses to achieve the goals of the psychological counselor to continue the counseling process (Yaka, 2005). Therefore, counseling skills are all of the behaviors that the counselor must exhibit in order for

---

[2] Psychological Counselor, Ministry of National Education, pdfyildirim@gmail.com, 0009-0005-9653-756X
[3] Prof. Dr., Burdur Mehmet Akif Ersoy Üniversitesi, firdevssavi@mehmetakif.edu.tr, 0000-0001-8536-3625

the psychological counseling process to be effective. In this definition, it is understood that counseling skills are very difficult to define and limit. In the literature, it is seen that psychological counseling skills and techniques are listed as follows: (Empathy, sustaining reactions (minimum level of encouragement, content reflection, emotion reflection, personalization), attitude based on respect and acceptance, structuring, close attention, transparency, self-disclosure, leading reactions (open invitation to talk, asking questions, summarizing), concreteness, here and now in the relationship, contextualization, confrontation, silence (Voltan Acar, 2015; Nelson Jones, 2014; Egan, 1975; Corey, 2008; Carkhuff, 2011; Sharf, 2014).

Since the effectiveness of psychological counselors in their profession is associated with personality traits, studies are generally conducted in this direction. In the psychological counseling profession, characteristics such as open-mindedness, cognitive flexibility, empathic skills, empathic tendency and high self-esteem are among the most sought-after personality traits. In the effective execution of the psychological counseling profession, it is emphasized that personality traits such as being sincere, sincere, respectful and liking to be oneself, knowing and accepting their abilities, and being open to change are necessary for the happiness of others, in other words, having a high empathic tendency is important for the successful performance of the profession (Çetinkaya Yıldız and Toprak, 2016). At the same time, it is extremely important in terms of professional ethics that psychological counselors have gained their professional competencies at a sufficient level, and competent counselors should not forget that they have the responsibility to provide effective help to their clients (Savi Çakar, 2017).

It is suggested that effective counseling requires understanding the boundaries of helpers, the aid profession, clients, and the environments that affect the helping process (Egan, 2011). The main purpose of psychological counseling skills is to allow clients to communicate by feeling comfortable and safe. When people empathize with themselves, they feel understood and cared for (Özbek, 2004). From this point of view, empathic understanding is needed to demonstrate counseling skills.

1.3. Empathy

Empathy is the ability to accurately perceive and communicate another person's feelings and experiences and their meaning, the main determinant of change and development in psychological counseling, and the therapeutic relationship itself. The empathy skill of the counselor is important in the formation of the therapeutic relationship. As Rogers (1983) points out, what people need most in some specific situations is empathy. Empathy is necessary to meet the client's need to be understood, to express the client more easily, to establish a transparent relationship, to reduce group resistance or individual resistance. Rogers argues that unconditional acceptance, proper communication, and intimacy offered by the counselor and perceived by the client are necessary and often sufficient for the therapeutic process. According to Rogers, thanks to empathetic counselors, clients who receive help understand themselves, free up their resources, and manage their lives more effectively.

At the heart of active listening with empathy is the kind of attention, observation, and genuine presence with the client that is needed to develop an understanding of clients and their world. While it is not possible to truly be involved in a person's world, it is possible to achieve this with a certain amount of empathy. The most basic form of empathy is empathetic listening. Empathic listening leads to empathic understanding, which in turn leads to empathetic replying. Empathic response, on the other hand, is the response requested from the counselor. The expression of empathy in the psychological counseling process enables clients to better understand their own problematic situations and untapped opportunities, and thus to enter a process that makes it easier for them to take action on problem management (Egan, 2011).

Therefore, it can be said that the transmission of empathy can contribute to a happy life for clients.

While it is seen that there are many criteria on effective counseling in the literature, it is understood that the most important variable in the effectiveness of the psychological counseling process is a collaborative relationship. Because even if all other criteria are met, it is stated that if there is no therapeutic relationship, the criteria provided are unlikely to help the treatment. If the relationship is not fully established in a counseling process, it is recommended that a second opportunity should be given to establish the relationship instead of moving on to the next stages (Boisvert and Faust, 2003). Although counselors using different counseling approaches agree that the relationship is necessary for effective counseling, the importance given to the relationship varies between the approaches (Nelson Jones, 2014; Boisvert and Faust, 2003).

1.4. Subjective Well-Being

The concept of subjective well-being, which is tried to be explained by the social and economic well-being of the individual, has been used together with or synonymously with concepts such as happiness, fitness, psychological well-being, life satisfaction, and optimism. The concept of subjective well-being, which is directly proportional to the satisfaction of the individual in his life in general, can be summarized as the presence and degree of positive mood and the absence of negative emotional states (Ng, 2015). According to Diener and Ryan (2009), the fact that an individual experiences positive emotion, he does not experience negative emotions or experiences them at a low level, and that an individual also has high life satisfaction are appropriate in defining subjective well-being. What is at stake here is the subjective assessment of the individuals' emotions and also includes the individual's perception of the quality of life.

It is argued that one of the purposes of the psychological counseling process is to ensure that clients can lead a happy life (Kepçeoğlu, 2004). According to Hackney and Cormier (2008), in order for a counselor to support the process of change and development on people, he must have been able to access psychological health by going through the processes of change and development. Subjective well-being is considered a predictor of psychological health. From this point of view, it is important to know and improve the subjective well-being levels of prospective counselors.

1.5. Purpose and Importance of the Research

This study aims to examine the predictive level of empathic tendency and subjective well-being on psychological counseling skills. According to Egan (2011), the counselor is effective as long as he is able to help the client manage certain problem situations and see that there is a need to improve his or her resources and opportunities that are not being used. The critical problem in the selection and evaluation of prospective psychological counselors is the identification of the components of effective counseling. For this, it is necessary to understand what contributes to success in the counseling process as a counselor (Whiteley, Sprinthall, & Mosher, 1967).

Examining the field literature, it is argued that many factors play a role in the effective psychological counseling process, such as counselor training, counselor's characteristics, client's characteristics and the counseling approach used (Egan, 2011; Nelson Jones, 2014). Among the factors of the counselor that affect the counseling process are personal awareness and understanding, being psychologically healthy, being sensitive to multiculturalism, being open-minded, being objective, being competent, being reliable, and being attractive in interpersonal relationships (Hackney and Comier, 2008; Corey, 2008; Lazarus, 1993). Client's factors include mood, motivation for change, expectations and priorities, age and maturity,

intelligence level, culture, biological and gender, and support factors (Hackney and Comier, 2008; Egan, 2011; Nelson Jones, 2014).

It is emphasized that the biggest determinants of development and change in the psychological counseling process are the characteristics of the counselor (Kraus, Castonguay, Boswell, Nordberg and Hayes, 2011). It is stated that there are great differences in the effectiveness of the standard guideline-based practices of psychological counselors, and that counselors with high empathy can be more effective regardless of the therapeutic relationship (Moyers and William, 2013). From this point of view, it is important to know the relationship between empathic tendency and subjective well-being, which are the characteristics of the counselor, with counseling skills in order to maintain psychological counseling effectively. This research is important in terms of revealing the relationship between psychological counseling skills and subjective well-being and empathic tendency.

2.1. Research Model

This research is descriptive research, and the approach of taking sections from general survey models was used in the research.

2.2. Study Group

This study/research was carried out with 249 students studying at the fourth grade level in the Psychological Counseling and Guidance Departments of the Faculty of Education of Burdur Mehmet Akif Ersoy University, Gaziantep University, Muğla Sıtkı Koçman University, Pamukkale University and Çukurova University in the 2018-2019 academic year. Of the respondents, 78.70% are females; 21.30% are males. 26.10% of the prospective psychological counselors were 21 years old; 38.20% of them were 22 years old; 27.30% of them were 23 years old; 8.40% of them were 24 years old and over.

2.3. Data Collection Tools

Physical and Psychological Listening Skill Assessment Form, Empathic Tendency Scale, Subjective Well-Being Scale were used as data collection tools in the study.

2.3.1. Physical and Psychological Listening Assistance Skills Assessment Form: The scale, which was developed by Uslu (2005) to measure the counseling skills of prospective psychological counselors, consists of 50 items in 4-item Likert type (0: none, 3: completely) and two subscales (physical listening, psychological listening). The reliability coefficients of the physical listening dimension obtained from the subscales with the test-retest method are r =. r= with 78. of 83; internal consistency coefficients ranged from alpha= .7 to alpha= .79. In this study, the Cronbach Alpha coefficient of the physical and psychological listening assistance skills evaluation scale was found to be .85.

2.3.2. Empathic Tendency Scale: The scale developed by Dökmen (1988) to measure the empathy potential of individuals consists of 20 items and one dimension in the five-item Likert type (1: completely against me, 5: completely suitable for me). The reliability coefficient of the scale obtained by the retest method was r=.91, the validity coefficient was found as (t=6.77, SD= 26, p <.001). In this study, Cronbach's Alpha coefficient of the scale was determined as 0.79.

2.3.3. Subjective Well-Being Scale: The scale, which was developed by Tuzgöl Dost (2005) to measure the frequency and intensity of positive and negative emotions experienced by individuals with their cognitive evaluations about their lives, consists of 46 items and one dimension in the five-item Likert type (1: not suitable at all, 5: completely appropriate). Cronbach's alpha amount of the scale was obtained as .93. In the test-retest measurement, it

was determined that the Pearson moment product correlation coefficient was .86. In this study, Cronbach's Alpha coefficient of the scale was determined as 0.95.

2.4. Collection and Analysis of the Data

For the process of collecting the research data, necessary permissions were first obtained for the application. Within the scope of the research, the participants were informed about the purpose of the research, the principle of voluntariness and confidentiality, and the scales. Prospective psychological counselors were reached with the Voluntary Consent Form. The application time for each participant lasted 25-30 minutes. Descriptive statistics, Pearson Correlation Coefficient and Progressive Multiple Regression Analysis were used in the analysis of data.

3. Findings and Discussion

3.1. Findings on the Relationship between Independent and Dependent Variables

Table 1 contains the results of correlation analysis on the relationship between independent and dependent variables.

Table 1. Results of Correlation Analysis

	2	3	4	5	6	7	8	9	10	11	12
1. Ability to Establish Appropriate Eye Contact	.36**	.34**	.30**	.72**	-.06	.12	-.02	.15*	.10	.16*	.18**
2. Proper Body Posture	1	.51**	.50**	.75**	-.02	.10	.12	.16**	.17**	.23**	.24**
3. Proper Head and Face Movements		1	.60**	.79**	-.08	.10	.06	.12	.10	.33**	.28**
4. Required Verbal Quality			1	.76**	.00	.08	.01	.18**	.13*	.26**	.29**
5. Physical listening skills				1	-.06	.14*	.05	.20**	.16*	.32**	.32**
6. Beginner Level Correct Empathy					1	.10	.20**	.06	.47**	.06	.09
7. Concreteness						1	.15*	.13*	.52**	-.03	-.07
8. Advanced Level Correct Empathy							1	.29**	.68**	-.04	-.04
9. Confrontation								1	.72**	.02	.05
10. Psychological listening skills									1	.00	.01
11. Empathic tendency										1	.75**
12. Subjective well-being											1

*: p< .05 **: p< .01

As can be seen in Table 1, a positive and significant relationship was found between empathic tendency and appropriate eye contact (r=.16), appropriate body posture (r=.23), appropriate head and facial movements (r=.33), required verbal quality (r=.26), physical listening skills (r=0.32) scores. Prospective psychological counselors with high empathic tendencies also have high physical listening skills. A positive and significant relationship was found between subjective well-being and appropriate eye contact (r=.18), appropriate body posture (r=.24), appropriate head and facial movements (r=.28), required verbal quality (r=.29), physical listening skills (r=05) scores. Prospective psychological counselors with subjective well-being also have high physical listening skills. On the other hand, it was determined that there was no significant relationship between subjective well-being and empathic tendency and psychological listening skills.

The results of multiple regression analysis of the effect of empathic tendency and subjective well-being on physical listening skills are given in Table 2.

Table 2. Effects of Empathic Tendency and Subjective Well-Being on Physical Listening Skills

Independent Variables	B	SH$_B$	β	t	p
Constant	1.746	.125		13.994	.000
Empathic tendency	.101	.052	.174	1.931	.055
Subjective well-being	.081	.038	.190	2.106	*.036
R=.341 R^2=.116 ΔR^2=.109	F$_{(2;246)}$=16.167 p=.000				

* p< .05

Examining Table 2, it is seen that the model showing the relationship between empathic tendency and subjective well-being and physical listening skills is appropriate (F$_{(2; 246)}$=16.17). When the regression coefficients and the t-test result regarding the significance of the coefficients were examined, it was found that subjective well-being (β=.22; t=3.58) had a positive and significant effect on physical listening skills, that empathic tendency did not have a significant effect on physical listening skills. Accordingly, according to the results, the subjective well-being of prospective psychological counselors is a significant predictor of physical listening skills.

The results of multiple regression analysis of the effect of empathic tendency and subjective well-being on psychological listening skills are given in Table 3.

Table 3. Effects of Empathic Tendency and Subjective Well-Being on Psychological Listening Skills

Independent Variables	B	SH$_B$	β	t	p
Constant	2.152	.210		1.241	.000
Empathic tendency	.008	.088	.009	.093	.926
Subjective well-being	.012	.065	.018	.183	.855
R=.012 R^2=.000 ΔR^2=.008	F$_{(2;246)}$=.019 p=.981				

* p< .05

Examining Table 2, it is seen that there is no relationship between empathic tendency-subjective well-being and psychological listening skills (F$_{(2; 246)}$=0.02). When the regression coefficients and the results of the t-test regarding the significance of the coefficients were examined, empathic tendency and subjective well-being together did not have a significant effect on psychological listening skills. Accordingly, it was determined that empathic tendency and subjective well-being together did not significantly predict psychological listening skills.

4. Discussion and Conclusion

In the study, it was determined that there was a positive and significant relationship between the subjective well-being of prospective psychological counselors and their physical listening skills. This finding is very important in terms of showing that the high subjective well-being of prospective counselors shows that they can focus more on their clients in terms of physical listening during the psychological counseling process. In order for counselors to create this level of change in their clients, they need to make them feel that they are fully present physically, psychologically, and mentally during the counseling process (Nelson Jones, 2014; Egan, 2011; Corey, 2008; Carkhuff, 2011; Sharf, 2014). To achieve this, high subjective well-

being will make an important contribution to this process. Therefore, it is thought that the high subjective well-being of psychological counselors will play a very important function in terms of conducting effective counseling in the counseling process.

In the study, it was also revealed that there was a significant relationship between the physical listening skills of psychological counselor candidates and their empathic tendency; that there was no significant relationship between psychological listening skills and empathic tendency. When this finding is evaluated in the light of the relevant literature; while Rogers (1983) and Voltan Acar (2015) state that empathy is an important counseling skill and condition, it is known that active listening is the basis of empathy skill (Corey, 2008; Carkhuff, 2011; Dökn, 1988). Considering that this result does not show a cause-and-effect relationship between empathic tendency and psychological counseling skills, studies using experimental and longitudinal methods can be conducted to reveal whether there is a cause-and-effect relationship between the variables related to psychological counseling skills. As can be seen in these results, knowing the effect of the empathic tendency of counselor candidates on counseling skills and revealing the variables related to counseling skills will contribute to the research to be carried out in this field, especially in counselor training programs.

While it was determined that the subjective well-being of psychological counselor candidates predicted their physical listening skills positively and significantly, it was also determined that psychological listening skills were not significantly invisible. This result is important in terms of contributing to the understanding of the effect of subjective well-being levels of psychological counselor candidates on psychological counseling skills. As a result, while it is thought that conducting studies to increase subjective well-being in counselor training will contribute to increasing competence in physical listening skills, it will be important to conduct studies to reveal the causal relationship between psychological listening skills and subjective well-being.

The degree of commitment to life and psychological health of psychological counselors are among the important variables that determine the benefit to be obtained from psychological counseling to be an effective psychological counselor (Corey, 2015). Corey (2015) also argued that effective psychological counselors should have a strong personality structure and know who they are, their limits, what they expect from life, and what is necessary. Counselors must learn to live effectively physically, mentally, and socially and emotionally through rigorous preparation, and as a result, their subjective well-being must be at a good level. Counselors should be able to cope with the problems that have arisen or may arise in their lives, not some specific problems in their lives.

Consequently, in this study, the importance of increasing the psychological health, subjective well-being and empathy levels of counselors in terms of gaining effective psychological counseling skills and conducting the counseling process has been revealed once again. These results show that there is a need for new research in the field of psychological counseling, especially psychological counselor training.

5. Suggestions

In light of the findings obtained from this study, the following recommendations are given:

- Since the relationship between empathic tendency and subjective well-being and physical listening skills has been revealed, it is considered important to carry out psycho-education studies to increase the subjective well-being of psychological counselor candidates and to improve their empathic tendencies in Psychological Counseling and Guidance programs.

- The number of comprehensive studies on counseling skills and empathy, which are the main concepts of the field of Psychological Counseling and Guidance, should be increased with different experimental and longitudinal sample groups.

References

American Association Psychological. (1999). Archival description of counseling psychology. The Counseling Psychologist, 27(4), 589-592.

Burnard, P. (1992). Know Yourself! Self Awareness Activities for Nurses. Scutari, London.

Boisvert, C. M. & Faust, D. (2003). Leading researchers' consensus on psychotherapy research findings: Implications for the teaching and conduct of psychotherapy. Professional Psychology: Research and Practice, 34(5), 508.

Corey, G. (2008). Psikolojik danışma ve psikoterapi kuram ve uygulamaları (T. Ergene, Trans.). (8. Baskı.). Mentis Publishing.

Carkhuff, R. (2011). 21. Yüzyılda yardım etme sanatı (Çeviren: R. Karaca ve F. E. İkiz). Ankara: Nobel Yayınevi Basım Dağıtım.

Çetinkaya-Yıldız, E. & Toprak, E. (2016). Psikolojik danışman adaylarının empatik eğilim, utangaçlık, olumsuz değerlendirilme korkusu ve sosyal beceri düzeylerinin farklı değişkenler açısından incelenmesi. Mediterranean Journal of Humanities, 6(2), 513-530.

Diener, E. & Ryan, K. (2009). Subjective well-being: A general overview. South African Journal Of Psychology, 39(4), 391-406.

Dökmen, Ü. (1988). Empatinin yeni bir modele dayanılarak ölçülmesi ve psikodrama ile geliştirilmesi. Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi, 21(1), 155-190.

Egan, G. (1975). Psikolojik danışmaya giriş kitabına eşlik eden eğitim el kitabı. (F. Akkoyun, Trans.). (1. Baskı.). California: Brooks/Cole Publishing Company.

Egan, G. (2011). Psikolojik danışma becerileri (Ö. Yüksel, Çeviri.). 1. Issue. İstanbul: Kaknüs Publishing.

Hackney, H. & Cormier, S. (2008). Psikolojik Danışma İlke ve Teknikleri: Psikolojik Yardım Süreci El Kitabı (Professional Counselor: A Process Guide to Helping) (T. Ergene & S. S. Aydemir, Trans.). 1. I. Issue, Ankara: Mentis Yayıncılık.

Kepçeoğlu, M. (2004). Psikolojik Danışma Ve Rehberlik. İstanbul, Alkım Publishing.

Kraus, D. R., Castonguay, L., Boswell, J. F., Nordberg, S. S. & Hayes, J. A. (2011). Therapist

effectiveness: Implications for accountability and patient care. Psychotherapy research, 21(3),

267-276.

Lazarus, A. A. (1993). Tailoring the therapeutic relationship, or being an authentic chameleon. Psychotherapy: Theory, Research, Practice, Training, 30(3), 404.

Moyers, T. B. ve Miller, W. R. (2013). Is low therapist empathy toxic? Psychology of Addictive Behaviors, 27(3), 878.

Nelson Jones. (2014). Uygulamalı danışmanlık ve yardım becerileri (G. Sart, Çeviri). 1. Baskı. Ankara: Nobel Akademi.

Ng, Y.K. (2015). Happiness, life satisfaction, or subjective well-being? A measurement and moral philosophical perspective. Nanyang Technological University.

Özbek, M. F. (2004). Toplumsal yaşamda empati. Akademik Bakış Uluslararası Hakemli Sosyal Bilimler E-Dergisi. 1, 1-16.

Rogers, C.R. (1983). Empatik olmak, değeri anlaşılmamış bir varoluş şeklidir. Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi, 16(1), 103-124.

Savi Çakar, F. (2017). Psikolojik danışmada yetkinlik. (F. E. İkiz, Ed.), Meslek etiği ve yasal konular, (s.s 157-173). İstanbul: Lisans Publishing.

Sharf, R. (2014). Psikoterapi ve psikolojik danışma kuramları kavramlar ve örnek olaylar (N. V. Acar, Çeviri.). 5. Baskı. Ankara: Nobel Yayın Dağıtım.

Tuzgöl Dost, M. (2005). Öznel İyi Oluş Ölçeği'nin geliştirilmesi: Geçerlik ve güvenirlik çalışması. Türk Psikolojik Danışma ve Rehberlik Dergisi, 3(23).

Uslu, M. (2005). Psikolojik danışmanların danışma becerilerinin geliştirilmesi. Selçuk Üniversitesi Eğitim Bilimleri Enstitüsü, Unpublished Doctoral Thesis. Konya.

Voltan Acar, N. (2015). Yeniden terapötik iletişim (11. Baskı.). Ankara: Nobel Yayın Dağıtım.

Whiteley, J. M., Sprinthall, N. A. & Mosher, R. L. (1967). Selection and evaluation of counselor effectiveness. Journal of Counseling Psychology, 14(3), 226.

Yaka, B. (2005). Psikolojik danışmanların temel psikolojik danışma becerilerine ilişkin yeterlik düzeylerinin bazı değişkenlere göre incelenmesi. (Unpublished Master's Thesis). Ege Üniversitesi. İzmir.

Empathy Skills and Psychological Counseling[1]

Faruk YILDIRIM[2]
Firdevs SAVİ ÇAKAR[3]

Introduction

In thıs chapter, the concept of empathy and empathy skills are explained and the use of empathy skills ın psychological counseling is explained.

The concept of empathy

Thought to derive from the Greek words "empatheia" (feeling in …) and "empeiria" (skill and experience in any subject), is defined as the power of the individual to imagine and discover the experiences, feelings and thoughts of the other person by entering into his personality traits. According to the definition, for empathy, first of all, the individual must enter the role of the other person and be able to look from the other person's point of view. In the second stage, the individual should have the ability to understand other person's feelings and thoughts; in the last stage, the individual needs to try to understand the other person sincerely without judging him (Arkonaç, 1999).

The fact that the individual is objective while evaluating the feelings and thoughts of the other person and evaluates their possible meanings, and moreover, experiencing other person's feelings and thoughts as a representation are also considered within the concept of empathy. In other words, putting oneself in the other person's shoes, sharing his sorrows and joys, and assuming that the individual is living in the conditions that the other person is experiencing are shown as empathetic behaviors. While the individual tries to understand the feelings and thoughts of the other person with empathy, he is looking for ways to communicate better with the other person (Budak, 2019). Examining the definitions for empathy, it is seen that various needs and conditions are mentioned. Empathy is defined as the individual's understanding of the feelings of the other person while maintaining his impartiality. Empathy, hich starts to emerge from the childhood of the individual, develops with age (Kapıkıran, 2017).

Rogers (1983) used the following definition for the concept of empathy: "The process of understanding the feelings and thoughts of the other person correctly in a certain situation, feeling his emotions and delivering these feelings to the other person". Rogers, who examines empathy in two dimensions such as cognitive and emotional, has discussed the understanding of thoughts in the cognitive dimension and the feeling of emotions in the emotional dimension. In particular, emotional empathy is stated to have a motivating role in terms of understanding and helping the other person. It is also accepted that empathy helps the individual to gain reconciliation, awareness and communication skills, thus gaining socialization behaviors (De Kemp et. al, 2007) and also hope, self-efficacy (Savi Cakar, 2018).

[2] Psikolojik Danışman, Milli Eğitim Bakanlığı, pdfyildirim@gmail.com, 0009-0005-9653-756X
[3] Prof. Dr., Burdur Mehmet Akif Ersoy Üniversitesi, firdevssavi@mehmetakif.edu.tr, 0000-0001-8536-3625

When the concept of empathy, as one of the important achievements of social life, was explained for the first time, the definitions of "the process of entering the mind of the other person and taking his feelings and thoughts into himself" were used. In other words, empathy refers to directly understanding the emotional experience of the other person and putting oneself in the other person's shoes. From the first definition of the concept of empathy, it can be seen that the definition has developed in parallel with the development of the science of psychology and the cognitive aspect was emphasized at the beginning. From this point of view, while empathy was defined as the ability of the individual to understand the thoughts of the other person, the emotional aspect of empathy started to gain weight in the future. According to the emotional approach, it is accepted as empathy for the individual to understand the feelings of the other person and to feel and experience the same emotion. With the development of approaches to the concept of empathy, the behavior of responding appropriately to emotions has been added to the definition. Recently, all these views have been brought together, and the view of understanding their feelings and thoughts by putting themselves in the place of the other person and giving appropriate reactions has become established (Dökmen, 2017).

Rogers (1983) is known for bringing together the definitions on this subject. By bringing together the above-mentioned perspectives, according to the broad definition accepted today, three basic elements are mentioned for the individual to be able to empathize. The first of these is that the individual puts himself in the place of the other person and looks at the events from his point of view. An attempt is made to empathize by entering the field that expresses the way of looking at the world, which is expressed as the "*phenomenological field*" of the other person. In this way, it is possible to enter the role of the other person, to take his place and look at things from his point of view. The point to be considered here is that this transition is short-lived and the individual can return to his own role. The second condition or second stage of empathy is the correct understanding of the feelings and thoughts of the empathized person, which is expressed as the "*cognitive component of empathy*". The high level of the first two stages allows the individual's awareness to be high and the level of relationship to be at the desired level. In the third step of empathy, it is the behavior of the individual to convey the empathic understanding he has created in his mind to the other person. Because it will not be enough for the individual to understand the feelings and thoughts of the other person correctly, and the empathy process will be completed by expressing the feelings and thoughts he understands or perceives to the other person.

Dökmen (2017) listed the three elements needed for empathy to be realized as follows:

1- For the individual to perceive and understand his environment, he must use the other person's point of view, not his own perceptions, and make the evaluation accordingly.

2- It is necessary to understand and feel the feelings and thoughts of the other person correctly to establish empathy. The attitudes of understanding and feeling towards the thoughts expressed here are the individual's imagining himself in the place of the other person and visualizing his experiences in his mind. According to Dökmen (2017), empathy cannot be mentioned if emotions are not felt.

3- The third element necessary for empathy is that the individual conveys the thoughts and feelings that he understands or feels to the other person, as Rogers expresses. This is where the importance of empathy skill or empathic tendency emerges. Because while it takes a skill for the individual to understand and feel feelings and thoughts and to convey them to the other person, although the individual has the ability to understand and feel feelings and thoughts, the lack of desire to act in such a way will prevent the realization of empathy.

The importance of empathy

A person, who is a social being, needs correct communication to maintain his social relations in a healthy way. Empathy, which expresses the understanding of individuals for each other, gains importance for correct communication. Empathy awareness has positive effects on social relations. One of these effects is the ability to initiate and maintain relationships with other people. Evaluating in terms of society in general, it is possible to develop social peace in environments where there is healthy communication and balanced relationships (Albrecht, 2006).

The requirements of the empathy process are among the important elements in the relationships that the individual encounters in all areas of his daily life and in strengthening his relations with his close environment. Empathy, which is required for communication to be easy, accurate and healthy, maximizes the perception of intelligibility among individuals. The fact that individuals care about the other person or feel that the other person cares about them makes it easier to establish close relationships. The ability of people to observe and understand their inner worlds mutually will lead to positive behavioral changes in their bilateral relations (Yüksel, 2004).

To have empathic behaviors or empathic tendencies, the individual must be in constant communication with his environment. Communication and interaction are strengthened through social relationships that develop empathic skills, increasing the ability of individuals to mutually convey their feelings, give feedback, and ultimately understand each other better. In this mutually nourishing process, the individual's empathic skills develop, communication conflicts are prevented and interpersonal relationships become healthier. Empathic skills, which also contribute to the personality development of individuals, will enable the healthy development of all relationships throughout life. In this context, it is among the issues that should be emphasized that empathic skills are not innate but acquired later (Rogers, 1983). Considered in terms of development and adaptation, empathy is an area open to lifelong development as a skill; It is among the most basic skills that need to be developed in children. As a matter of fact, empathic tendency in children has been found to be associated with many positive outcomes. For example, it has been determined that children with high empathic tendencies have increased levels of hope, self-efficacy and school attachment (Savi Çakar, 2018).

Although it is not clearly expressed in the definitions of empathy, the fact that the individual compares the behavior of the other person with his own behavior and does this consciously causes a third dimension to be added as a behavioral dimension in addition to the thought and emotion dimensions for empathy. An example of this is that when describing an address, it can be shown that the directions are described according to the other person, not according to himself. Individuals who do not have empathic tendencies, on the other hand, will express their own directions when describing the address. In this respect, behavioral empathy guides the working life of the individual. The job descriptions made by team or organization leaders for employees reveal the importance of behavioral empathy. Because it is important to determine whether the skills of the individual are suitable for the work to be done with physical conditions, it is possible to determine the suitability of the individual's emotional state with empathic skills. In cases where behavioral empathy is not taken into account, unrest may arise in working life (Tarhan, 2019).

The importance of empathy also emphasizes the importance of empathic tendency. Individuals with empathic tendencies are more willing to understand the feelings of the other person, to experience their emotional lives and to act proactively. On the other hand, empathetic behaviors also contribute to the development of an individual's empathy skills. From the point of view of society, individuals who understand the feelings of others, help and do this willingly

contribute to the high level of social solidarity and cooperation. Another contribution of empathetic individuals can be explained by the fact that they are more easily accepted in their environment and become role models for those in their immediate environment. As stated above, empathy, empathic skills, empathic tendencies are attitudes and behaviors learned from childhood, so they contribute to the development of behaviors in this direction by other individuals in the society (Yaycı, 2018).

Since empathy, which is one of the important elements for the development and effectiveness of interpersonal communication, includes the ability of individuals to understand each other correctly and to convey the feelings and thoughts they understand to the other person, individuals with high empathic skills positively affect social communication and interaction. Communication, which has an important place in human life, contributes to the success of the individual in business life as well as in bilateral relations. Otherwise, the communication of individuals weakens, and since it is not possible for the other person to enter the world of emotions, social solidarity and cooperation weaken. In other words, there is a positive relationship between cooperation and solidarity and empathic tendency (Oran and Kurul, 2019).

The process and classification of empathy

As expressed in the definitions, empathy can become a behavior and empathy behavior emerges in a process. The process of empathizing starts with the effort to understand emotions and thoughts and is completed by expressing what he understands in an appropriate way to the other person and thinking that the other person is understood. According to the progressive empathy classification, the process of empathizing consists of three main steps: "*they, I, you*", each of which consists of two sub-steps. Typical of these steps, shown below, is the order of empathic behavior from weakest to strongest (Dökmen, 2017):

"*They*" step: At this stage, the individual who listens to the feelings and thoughts and problems of the other person does not attach importance to the problems of the other person and does not talk about his own feelings and thoughts. The reaction is a reflection of the reactions of other people around. It dismisses the situation with some generalizations and general expressions. In this step, the sub-steps "what do others think about this problem?" and "how do others feel about this problem?" can be mentioned.

"*I*" step: At this stage, the individual exhibits a self-centered approach to the feelings and thoughts of the other person, and exhibits a judgmental, critical and rational attitude towards the feelings and thoughts of the other person. Most of the time, he leaves the other person alone with his problems and talks about himself. An example of this is that individual says "I have the same problems" and leaves the other person alone with his problems and tells his own problems. Attitudes and behaviors in the "I" step can be summarized as "criticizing", "advising", "diagnosing", "I have it, too", "my feelings" sub-steps.

"*You*" step: The individual at this stage reacts empathetically in the real sense, not only listens to the feelings and thoughts of the other person, but also identifies with himself by putting himself in his place and tries to understand what is actually meant to be said. To put it more clearly, the individual enters the role of the other person. Another striking feature of individuals in the "You" step is that they do not express their own problems, feelings and thoughts while listening to the other person, and try to understand the feelings and thoughts of the other person by focusing directly on their feelings and thoughts. In "You" step, there are sub-steps such as "supporting", "addressing the problem", "repeating" and "understanding deep feelings", which are indicators of strong empathic behaviors.

Empathic skill and empathic tendency

Empathic tendency can be defined as the potential to exhibit empathic behavior. It is stated that individuals who can empathize with the other person have an empathic tendency because they have social sensitivity. Since each individual's social sensitivity is different, the level of empathic tendency also differs. In other words, the higher the social sensitivity, the higher the tendency of individuals to establish empathic tendencies (Kaya and Sivez, 2010).

The empathic tendency, which expresses the potential of the individual to experience what the other person is experiencing and to feel their emotions without judging them, can also be defined as the level of social sensitivity. If a person can look from the other person's point of view, see the world through their eyes, feel their emotions and convey them to the other person, it can be said that they are an empathetic individual. As empathy is important, empathic tendency is also an important component of effective communication. Because when people empathize with themselves, they feel that they are understood and cared about by other people. As stated in the previous sections, empathy can be learned and taught later, so it can be gained as a behavior. For this reason, gaining empathy skills from childhood plays an important role in the empathic tendency of individuals (Traş and Keser, 2019).

Individuals with a high empathic tendency can appropriately evaluate and express the expectations and wishes, emotional states, and possible reactions of others. It is important for the individual to notice their emotions and take appropriate roles from childhood, to understand the feelings of others and to see their perspectives during the socialization process. Individuals with high empathic tendencies are better able to control their emotional reactions from childhood, develop the ability to use emotional mechanisms for their reactions, and have high intrinsic motivation. Empathy, which is needed in interpersonal relationships, is important for the individual to understand both his own feelings and the emotions of others, and to establish and maintain healthy relationships. Empathic skills not only reduce aggressive behaviors in society, but also contribute to the reduction of antisocial personalities and the development of positive behaviors (Topçu, Baker and Aydın, 2010).

Empathic skill, on the other hand, can be defined as the capacity to transform empathic tendency into behavior. Empathic skills help individuals establish healthier relationships by allowing them to approach interpersonal relationships positively. Individuals with high empathic skills and tendencies are more in harmony with their environment as they are more capable of understanding feelings and thoughts and opening their own feelings and thoughts. Examining the social circles, it is seen that individuals who establish close friendships and have peer support are empathetic individuals with empathic skills. Empathy skills, which are closely related to the adaptation of the individual in the social environment, enable the individual to be more successful in understanding their own behaviors and the reasons for the behavior of others. Therefore, tolerance, solidarity, cooperation and cooperation will be at a high level in the society consisting of individuals with empathic skills (Dökmen, 1988; 2001).

Classification of empathic tendency

Examining the evaluation stages of the concept of empathy from past to present, it can be seen that although it was only at the cognitive level at the beginning, it was also discussed at the emotional level thanks to Rogers. In other words, it is related to the first classification area for empathy. In order for individuals to empathize, they must enter the subjective space of the other person. The subjective sphere consists of the mental and emotional spheres of the individual. It is possible for individuals with empathic tendencies to exhibit emotional or mental empathic behaviors, and tendencies can be seen in both areas according to the level of empathic tendency (Dökmen, 2017).

By accepting the view that individuals' empathic tendencies are acquired later instead of the view that they are innate, it has been accepted that empathy is a skill that can be trained and taught. In this context, it is stated that it would be appropriate to add moral and behavioral dimensions in addition to the cognitive and emotional classification of empathy. The cognitive and emotional dimensions of empathy, which were mentioned earlier, refers to the intrinsic motivation that the individual needs to understand emotions. In the behavioral dimension, which constitutes the fourth dimension of empathic tendency, it includes the active listening and reflection communication skills of the individual, which also fits the definition of empathy made by Rogers. Because in the definition of empathy, the elements of "intrinsic motivation to understand feelings and thoughts", "feeling emotions", "understanding thought", "being able to convey and express what you understand and feel" are emphasized (Rogers, 1983).

In another classification of empathic tendency, "instinctive, relational, experiential, basic, advanced, high" classification is made. This classification, in which almost all the definitions in the literature on empathic tendency are brought together, can be summarized as follows (Gün, 2018):

Instinctive Empathy: In the instinctive dimension of the empathic tendency, there is a correct interpretation of the facial expressions and tone of voice of the other person. Individuals with instinctive empathic tendencies can understand the thoughts of the other person, feel their emotions and develop appropriate reactions based on these stimuli. Examples of instinctive empathy are emotional expressions such as sadness and happiness on the face, speaking in a loud voice or shouting, understanding the emotional state of the individual and giving appropriate reactions, such as constant movement of hands and feet where they sit.

Relational Empathy: The level of empathy of the individual increases or decreases in parallel with the closeness to the other person. For example, parents' empathetic tendencies toward their children will be higher than their empathetic inclinations toward their co-workers, and their empathetic tendencies toward co-workers will be higher than their empathetic inclinations toward any situation they encounter on the street.

Experiential Empathy: It expresses the empathy developed by the individual through his experiences. The best example of experiential empathy is the proverb "only those who falls from the roof understand the others who fall from the roof". If the situation of the other person has been experienced before, the empathic tendency will also be high.

Basic Empathy: Listening to the feelings and thoughts of the other person, showing that they are listening, eye contact, body language and making the other party feel understood are included in this classification.

Enhanced Empathy: It refers to understanding the insight of the other person's words and behaviors, and perceiving what is really meant to be told.

High Empathy: It expresses the highest level of empathic tendency and indicates that individuals with a high level of empathic tendency are sensitive, understanding, fair, and have made compassion and love their goal. Individuals who have turned the empathic tendency into a lifestyle are known to be reliable and honest in their environment.

Psychological counseling and empathy

Egan (2011) expresses that empathy can be perceived as a personality trait, a process with stages, a value to be carried, an emotional state specific to feeling and understanding another person as a predisposition to understand the world of others, and emphasizes that empathy is a skill that can be developed. In order for empathy to be transmitted, the elements of comprehension, methodology and initiative must be present. Comprehension is the

counselor's ability to understand the client correctly. Knowledge of the method is the awareness of the reaction that the client needs. Intervention, on the other hand, is to give the reaction that the client needs. It is argued that empathy when the intervention is not successful, that is, when the response needed by the client is not conveyed, cannot contribute to the therapeutic relationship and counseling (Erkus, 1994 cited by Alver, 2005).

Although counselors have empathy for their clients and are motivated by empathy values, they may find it difficult to put empathic understanding into words. Because conveying empathy is a skill (Egan, 2011). Empathy is not a contrived technique that the therapist routinely uses. What is meant by empathic understanding is that counselors understand the subjective world of the client in a deep way together (Corey, 2015). According to Carkhuff (2014), if it is necessary to understand how an element communicates with others, the way to do this is to be like it. To understand the inner perspective of an animal, it is necessary to get down on your hands and knees like an animal and look at the world in the same way that animal looks. The same is true for people, if a counselor wants to understand their client's experiences, they should at least try to be like them for a while. To do this, counselor needs empathy. According to Voltan Acar (2015), when giving an empathic reaction, it is necessary to pay attention to the intensity of the client's emotion and to react appropriately to the intensity of that emotion. Attention should be paid not only to the verbal reactions of the client, but also to his intonation and body language

According to Corey (2015), empathic understanding means that the therapist senses the client's emotions without losing himself in client's emotions. This phrase emphasizes that empathy must be established consciously and within limits. The most obvious limit of empathy is to feel the emotions of another without giving up one's own position. In empathy, the goal is to look at the world through the eyes of the other. Looking at the world through the eyes of the other, it is necessary to move away from objectivity and not to drown in the emotions of the client. According to Voltan Acar (2015), empathy has two aspects in terms of content and emotion. In order for the counselor to fully empathize, he must have the skills to follow the content and emotions

Egan (1975) divided the empathic response into correct empathy at the initial level and empathy at the advanced level. At the initial level, correct empathy is when the counselor reacts in a way that shows that he is listening to the client in a way that the counselor understands what he feels and what he wants to say about himself through his verbal and nonverbal messages. In a way, it is about thinking that the counselor is himself in the place of the client and reflecting that world to the client. Correct empathy at the initial level involves reacting to the visible face of what the client is saying, while correct empathy at the advanced level involves reacting to what the client really wants to say. For advanced empathy, the counselor must be able to communicate that the client understands not only what he says, but also what he or she expresses, the cues he gives, and the nonverbal expressions. The counselor should be able to make connections between statements that seem different from the client.

To be able to react empathetically at an advanced level, it is necessary to look at what the client tells from a broader framework, to pay attention to what the client wants to say indirectly, not directly to what the client says, to the logical judgments that the client says, to the important issues that the client talks about less, to the things that the client dwells on a lot, and to try to find the themes of the subjects that the client describes, and to give importance to the feelings and thoughts that the client does not embrace. On the other hand, when performing an advanced empathic response, it is necessary to construct probability sentences instead of definite statements (Egan, 1975).

According to Voltan Acar (2015), there are 5 different levels of empathic responses. Although all of these levels are considered empathic responses, it can be concluded that the

skill is better practiced as you progress from level 1 to level 5. It is important for a psychological counselor to be able to react empathetically at least at the 3rd level to be an effective psychological counselor.

1. Level empathic response. It is the psychological counselor's misunderstanding and misrepresentation of the client. For example, it can be said that the counselor who reacts to the client who states that "he cannot please his boss even though he does his best in his job" by saying, "Why don't you tell him that he will not be a faultless person" has empathy at the 1st level.

2. Level empathic response. It is the incomplete and inadequate reflection of what the counselor says. For example, it can be said that the counselor who reacts to the client who states that "he cannot please his boss even though he does his best in his job" by saying, "It is quite difficult to work with your boss" has empathy at the 2nd level.

3. Level empathic response. It is the reflection of the consultant as it is, the emotion and the content. Since it focuses on the client's emotions on the surface, there is no question of the existence of advanced empathy. For example, it can be said that the counselor who reacts to the client who states that "he cannot please his boss even though he does his best in his job" by saying, "you want to please your boss, but you are discouraged" has empathy at the 3rd level.

4. Level empathic response. It is the consultant's slight additions to the emotion and content. It is to reach the deep meanings in what the client says. Personalization can be used to be able to respond empathetically at this level. For example, it can be said that the counselor who reacts to the client who states that "he cannot please his boss even though he does his best in his job" by saying, "You feel suffocated, you do not know how to please your boss" has empathy at the 5th level.

5. Level Empathic Response. It is the counselor's deeper transfer of the client's world by adding to both the emotion and the content. For example, it can be said that the counselor who reacts to the client who states that "he cannot please his boss even though he does his best in his job" by saying, "You feel quite suffocated from pleasing your boss and you are hopeless" has empathy at the 5th level. Here, based on what the client conveys while expressing himself, his deep feelings and thoughts that he cannot express are expressed and, in this way, empathy is established.

In the psychological counseling process, it is one of the most important features that psychological counselors should have to understand and feel the inner perspective, feelings and thoughts of the client correctly and to be able to convey this to the client. In this context, psychological counselors with a high level of empathic tendency increase the quality and effectiveness of their relationships with clients. It not only creates an environment that facilitates the clients to provide information, but also helps the counselor to discover himself. For this reason, empathy education, which makes a significant contribution to the psychological counseling process, is given importance in the education process of psychological counselors (Karaırmak, 2011).

The importance of the ability to communicate effectively in the counselor-client relationship with the human-to-human communication process requires high quality communication. Because in the psychological counseling profession, services are provided for the solution of problems. The psychological counseling profession, which is increasingly accepted in the society, has a place in the life of the individual since primary school. The personality traits of the psychological counselor also become more important in this respect. The mature, empathetic, warm attitudes and behaviors of psychological clients, having an altruistic spirit, and being emotionally sound make their perspective on the profession more positive day by day. In this context, it is important for psychological counselors to respond to

the needs of clients as much as necessary, and in order to achieve this, it is important to be successful in interpersonal relationships, with high empathic skills and tendency (Gülbahçe and Özkurt, 2016).

Since the effectiveness of psychological counselors in their profession is associated with personality traits, studies are generally conducted in this direction. In the psychological counseling profession, characteristics such as open-mindedness, cognitive flexibility, empathic skills, empathic tendency and high self-esteem are among the most sought-after personality traits. In the effective execution of the psychological counseling profession, it is emphasized that personality traits such as being sincere, sincere, respectful and liking to be oneself, knowing and accepting their abilities, and being open to change are necessary for the happiness of others, in other words, having a high empathic tendency is important for the successful performance of the profession (Çetinkaya Yıldız and Toprak, 2016).

In Türkiye, empathy skills are emphasized in the training process of psychological counselors. Empathic skills are important for all individuals in general because there is a lack of empathy skills among the causes of the problems faced by the individual in their interpersonal relationships, as well as empathic skills are needed in the effective solution of problems in interpersonal relationships. In interpersonal relationships, it is an important skill for individuals to understand each other correctly (Akfırat, Ulusoy ve Kezer, 2018).

Among the internationally accepted basic skills in the psychological counseling profession, the right empathy skill is shown at the initial level. It is among the important issues to maximize the empathic tendencies of psychological counselor so that they can understand their clients correctly.

References

Akfırat, O. N., Ulusoy, Y. Ö. & Kezer, F. (2018). Psikolojik danışma ve rehberlik lisans programı öğrencilerinin mesleki ve kişisel gelişimlerine yönelik bir öğretim tasarımı uygulaması. Ondokuz Mayıs Üniversitesi Eğitim Fakültesi Dergisi, 37(1), 117-128.

Albrecht, K. (2006). Sosyal zekâ: Başarının yeni bilimi (Translated by: S. Göktan). İstanbul: Timaş Yayınları.

Alver, B. (2005). Psikolojik danışma ve rehberlik eğitimi alan öğrencilerin empatik beceri ve karar verme stratejilerinin çeşitli değişkenlere göre incelenmesi. Muğla Üniversitesi Sosyal Bilimler Enstitüsü Dergisi (14), 19-34.

Arkonaç, O. (1999). Açıklamalı psikiyatri sözlüğü. Nobel Tıp Kitabevleri, İstanbul.

Budak, S. (2019). Psikoloji sözlüğü. 5. Issue. Bilim ve Sanat Publishing.

Carkhuff, R. (2011). 21. Yüzyılda yardım etme sanatı (Translated by: R. Karaca ve F. E. İkiz). Ankara: Nobel Yayınevi Basım Dağıtım.

Corey, G. (2008). Psikolojik danışma ve psikoterapi kuram ve uygulamaları (T. Ergene, Çeviren.) 8. Issue. Mentis Publishing.

Çetinkaya-Yıldız, E. & Toprak, E. (2016). Psikolojik danışman adaylarının empatik eğilim, utangaçlık, olumsuz değerlendirilme korkusu ve sosyal beceri düzeylerinin farklı değişkenler açısından incelenmesi. Mediterranean Journal of Humanities, 6(2),513-530.

De Kemp, R. A., Overbeek, G., de Wied, M., Engels, R. C. & Scholte, R. H. (2007). Early adolescent empathy, parental support, and antisocial behavior. The Journal of Genetic Psychology, 168(1), 5-18.

Dökmen, Ü. (2017). Sanatta ve günlük yaşamda ve empati. 62. Issue. İstanbul: Remzi Kitapevi.

Egan, G. (1975). Psikolojik danışmaya giriş kitabına eşlik eden eğitim el kitabı. (F. Akkoyun, Çeviren). 1. Baskı. California: Brooks/Cole Publishing Company.

Egan, G. (2011). Psikolojik danışma becerileri (Ö. Yüksel, Trans.). 1. Baskı. İstanbul: Kaknüs Yayınları.

Gülbahçe, A. & Özkurt, S. (2016). Rehberlik ve Psikolojik Danışmanlık programını tercih edecek olan öğrencilerin empatik eğilim ve empatik becerilerinin bazı değişkenlere göre incelenmesi. Adnan Menderes Üniversitesi Eğitim Fakültesi Eğitim Bilimleri Dergisi, 7(1), 1-15.

Gün, N. (2018). Küçük mavi empati kitabı: Duygu dilini anlamak. 3. Issue. İstanbul: Kural Dışı Yayınları.

Kapıkıran, N. A. (2017). Kişilerarası ilişkiler ve iletişimde empati (A. Kaya Ed.). 1. Issue. Ankara: Pegem Akademi Publishing.

Karaırmak, Ö. (2011). Psikolojik danışma adaylarında empati. 20. Ulusal Eğitim Bilimleri Kurultayında sunulmuş sözlü bildiri. Burdur.

Kaya, A. & Siyez, D. M. (2010). KA-Sİ çocuk ve ergenler için empatik eğilim ölçeği: Geliştirilmesi geçerlik ve güvenirlik çalışması. Eğitim ve Bilim, 35(156).

Oran, N. T. & Kurul, Ş. (2018). Ebelik Öğrencilerinin Empatik Eğilim ve Empatik Beceri Düzeyleri. Sağlık Bilimleri ve Meslekleri Dergisi, 6(1), 42-50.

Rogers, C. R. (1983). Empatik olmak, değeri anlaşılmamış bir varoluş şeklidir. Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi, 16(1), 103-124.

Savi Çakar, F. (2018). Çocuklarda empatik eğilim, umut ve öz yeterliğin okula bağlanmayı yordama düzeyleri. Social Sciences Studies Journal, 27(4), 6103-6113.

Tarhan, N. (2019). Toplum psikolojisi ve empati. (12. Baskı.). İstanbul: Timaş Yayınları.

Topçu, Ç., Baker, Ö. E. & Aydın, Y. Ç. (2016). Temel empati ölçeği Türkçe uyarlaması: geçerlik ve güvenirlik çalışması. Türk Psikolojik Danışma ve Rehberlik Dergisi, 4(34).

Traş, Z. & Keser, G. (2019). Üniversite Öğrencilerinin Akılcı Olmayan İnanç Empatik Eğilim ve Duygusal Zeka Düzeyleri Arasındaki İlişkinin İncelenmesi. MANAS Sosyal Araştırmalar Dergisi, 8(3), 2360-2380.

Voltan Acar, N. (2015). Yeniden terapötik iletişim (11. Baskı.). Ankara: Nobel Yayın Dağıtım.

Yaycı, L. (2018). Üniversite Öğrencilerinde Empatik Eğilim ve Etkileşim Kaygısı Arasındaki İlişki. Karadeniz Sosyal Bilimler Dergisi, 10(18), 221-238.

Yüksel, A. (2004). Empati eğitim programının ilköğretim öğrencilerinin empatik becerilerine etkisi. Uludağ Üniversitesi Eğitim Fakültesi Dergisi, 17(2), 341-354.

Pursuit of Happiness: The Role of Perceived Loneliness and the Moderating Effect of Mindfulness

Handan AKKAŞ[1]

Introduction

Happiness is regarded as one of the most fundamental and universal goals of human life. Since happiness is one of the most important variables that encourage and direct people to do something, it has been one of the most studied topics from past to present (Levine, 2000; Odabaşı, 2016). All over the world, in different cultures and lifestyles, people look for different ways to be happy (Frey and Stutzer, 2002). Happiness refers to a state of feeling in which people want to feel good about themselves, satisfied with life and at peace, and is closely linked to an individual's physical health, personal relationships, career success, financial well-being, and all aspects of life. Happiness is also a critical factor that profoundly affects not only one's personal life but also one's professional life. When people are happy at work, they tend to be not only more productive and creative, but also more cooperative. Happy employees are more motivated at the workplace and show more commitment to their work, which can have a positive impact on the overall performance of the company. Thus, happiness at work can affect not only the individual's own well-being but also organizational success (Biswas-Diener & Dean, 2007).

In the list of 137 countries, Türkiye did not make it into the top 100. Ranked 112th in the 2022 report, Türkiye moved up 6 places to 106th place. Türkiye is at the bottom of the ranking in 2020 and 2021. In the Gallup 2023 report, Türkiye's Positive Experience Index score remained statistically unchanged at 45 (Helliwell et al., 2023). When the scores of these country-based studies are analyzed, it reveals the importance of working at the individual level since interventions to be made at the individual level can affect the society in general. As a result of studies investigating the factors that cause the happiness of individuals; it is revealed that the happiness of the individual is affected by many factors such as economic power, success, and life events (Akın & Satıcı, 2011), but current studies suggest that objective approaches cannot fully explain happiness, so researchers should turn to investigating subjective structures. While some individuals may be happy despite inadequate living conditions and all difficulties, others may define themselves as unhappy even in the best of situations. Likewise, while some individuals can be happy even with small things, for others, most good things are insufficient to be happy (Lyubomirsky & Lepper, 1999). When evaluated in this context, it is another factor that shows the importance of examining the happiness variable at the individual level.

One of the factors affecting the happiness variable is loneliness (Demir & Kutlu, 2016). On the other hand, although individuals continue their lives in a society, this does not mean that they are not alone. Today, social, and emotional loneliness caused by modern times is increasing. Although many people in business life live in a social environment, they may feel loneliness and isolation and this may affect their happiness levels (Doğan et al., 2009; Mercan et al., 2015; Russell, Cutrona, McRae, & Gomez, 2012).

Another factor affecting the level of happiness is the level of mindfulness (Carlson & Brown, 2005). The consciousness of individuals increases their level of happiness. The

[1] Dr. Öğr. Üyesi, Ankara Bilim Üniversitesi

individual's attention to the moment and focus on the moment directly affect happiness and well-being (Brown & Ryan, 2003). When the level of mindfulness is high, the individual can cope better with negative situations (Brown, Ryan, & Creswell, 2007). In this context, it is predicted that mindfulness will reduce the strength of the negative effect of perceived loneliness on happiness.

The purpose of this study to explain the moderator effect of mindfulness between the relationship of perceived loneliness and happiness. Mindfulness is assumed to decrease the negative effect of perceived loneliness on happiness. In this article, we will try to understand how individuals and institutions can optimize these positive impacts by emphasizing the importance of happiness in the workplace. By understanding the complex relationship between perceived loneliness and happiness, and by studying how mindfulness can influence this balance, we will shed light on key points in creating a more satisfying working environment for individuals and workplaces. The conceptual framework of the study can be explained by Job-Demand and Resources Model (Bakker and Demerouti, 2007).

When the literature is examined, as far as we investigated, there is no study examining the moderator effect of mindfulness on the effect of perceived loneliness on happiness in the service sector. Understanding the relationship between loneliness and happiness may point to the potential to enhance employee motivation and increase work engagement. When the literature is examined, it is seen that an employee who is happy at the individual level will be happy at the workplace and thus positive outcomes such as productivity, motivation and performance will increase. It can provide basic information for training and counseling services that can be provided in workplaces to encourage employees to cope with loneliness and be happier. The study can provide recommendations on feasible strategies to improve the psychosocial well-being of employees in the service sector.

In the second section, variables, relationships between variables, and the theoretical infrastructure that forms the relationship are mentioned. The third section includes the methodology section, which consists of the research model, sample and data collection tool. The study's findings are discussed in the fourth section, and their appraisal, limitations, and suggested improvements are discussed in the fifth section, and section six discusses theoretical and practical contributions.

Perceived Loneliness-Happiness

Happiness is an important condition in terms of protecting human health (Cohen, 2002), it contributes to individuals' expectations of living more (Joubert, 1992) and their satisfaction with life. Therefore, the study of happiness has become important for many researchers. According to Lyubomirsky and Lepper (1999), subjective happiness is the subjective evaluation of whether individuals are happy or unhappy. With this definition, the characteristic of happiness is separated from life events and gives individuals a universal level of happiness or unhappiness. Happiness is the satisfaction with life and the experience of more positive emotions and less negative emotions (Khan, 2009). Lyubomirsky (2007) defines happiness as a combination of joy, satisfaction, well-being and contentment, while Hills and Argle (2002) define happiness as a cognitive and affective evaluation of life. Happiness has different meanings such as satisfaction with life, positive feelings and thoughts, contentment, and life satisfaction (Diener et al., 2004).

When the factors affecting happiness are examined, it is seen that one of them is loneliness. Demir and Kutlu (2016) found in their study that loneliness explained 44% of the variance of the happiness variable. This rate is considered to be quite high. Therefore, it is important to examine the effect of loneliness on happiness. Loneliness refers to a troubled and complex life that a person can experience even when he/she is with someone else due to the

inadequacy and dissatisfaction of social relationships (Mercan et al., 2012). It is an emotional and mental isolation rather than physical distance. On the other hand, loneliness is also considered as a sad feeling that accompanies the perception that one's social needs are not met in the desired amount and especially in the desired quality (Hawkley & Cacioppo, 2010) and is defined as the inconsistency between the levels of social relationships desired and achieved by the individual (Dahlberg, Agahi, & Lennartsson, 2018). The perception of loneliness is defined by Yılmaz and Altınok (2009) as the situation experienced because of isolating oneself from one's environment, limiting interpersonal relationships and weakening social interaction.

Researchers have concluded that individuals with high feelings of loneliness have lower life satisfaction than those with low feelings of loneliness, and as a result, individuals with high feelings of loneliness are more unhappy (Yılmaz & Altınok, 2009; Tuzgöl-Dost, 2007). In another study, it is emphasized that individuals who become unhappy due to loneliness have higher suicidal tendencies (Durak-Batıgün, 2008). In short, it can be said that happiness level is negatively related to loneliness. Therefore, individuals who feel lonely also feel unhappy. In the light of the relevant literature, the following hypothesis will be put forward:

H1: Perceived loneliness has a negative and significant effect on happiness.

Perceived Loneliness, Mindfulness, and Happiness

Mindfulness, which is one of the variables that positively affect happiness, is defined as focusing on the "here and now" in a non-judgmental and accepting manner (Kabat-Zinn, 1994). The term mindfulness, which is one of the topics focused on in the positive psychology literature, is generally defined as focusing one's attention on what is happening right now in a non-judgmental and accepting way (Brown & Ryan, 2003; Cengiz et al., 2016; Kabat-Zinn, 2009).

As the level of mindfulness increases, people are thought to be more flexible and easier to adapt to internal and external experiences. Therefore, it is seen that their happiness levels are also higher (Pepping et al., 2013). In addition, mindfulness, which enables staying in the moment, can directly contribute to happiness as it brings vitality and clarity to the experience being lived (Brown & Ryan, 2003). It is observed that a person with a high level of mindfulness can experience, manage, and leave behind his/her emotions in a healthy way instead of being overwhelmed by the intensity of emotion in the face of a negative experience. Moreover, mindfulness improves an individual's ability to accept feelings and thoughts that cause anguish, pain, and are a source of stress for the individual in a balanced way and without judgment (Germer, 2009) and contributes positively to their happiness levels by making individuals less affected by negative emotions (Özyeşil, 2011; Tatlıoğlu & Deniz, 2011). Increasing the level of awareness of individuals is a factor that enables them to cope effectively with pain, provide more satisfaction from social relationships and increase mental health (Brown, Ryan, & Creswell, 2007). Individuals' consciousness, attention to the moment and focus on the moment directly affect happiness and well-being (Brown & Ryan, 2003). This concept, which is a simple way of being in a relationship with all experiences that reduce pain and taking steps for positive personal transformation (Siegel et al. 2009) and is effective in regulating emotions, helps people to perceive and regulate their own and others' emotions properly (Schutte & Malouff, 2011). When evaluated in this context, individuals with a high perception of loneliness will be able to easily manage and leave this situation behind when their level of mindfulness is high and thus increase their level of happiness.

The theoretical framework of the study can be explained by Job-Demands and Resources (Bakker and Demerouti, 2007). The scope of JDR theory includes demands and resources (Xanthopoulou et al., 2007). The physical, social, or organizational aspects of a job are called job demands, and they all include prolonged physical and/or psychological effort as well as

corresponding monetary and/or physiological expenses. The material, interpersonal, or societal components of a job are its resources. Employees are motivated to accomplish their goals by job resources because of their (intrinsic and extrinsic) motivational potential (Hackman & Oldham, 1980). Personal resources are now a part of the JD-R theory (Bakker and Demerouti, 2007; Xanthopoulou et al., 2009). According to Bakker and Demerouti (2017), personal resources are people's perceptions of their level of environmental control. The association between threats/demands and unfavorable outcomes is thought to be moderated by resources, according to the idea (Judge et al., 1997).

In this context, it is thought that mindfulness can be considered as a personal resource and will play a moderating role in the relationship between perceived loneliness and happiness. Personal resources are aspects of the self that are often linked to resilience and refer to individuals' feelings about their ability to successfully control and influence their environment (Hobfoll et al., 2003). Previous studies have shown that these personal resources are not only related to stress resilience but also have positive effects on physical and emotional well-being (Chen et al., 2001; Scheier & Carver, 1992). It is seen that mindfulness will enable us to show resilience against perceived loneliness and increase our well-being, here our level of happiness.

Many researchers have conducted numerous studies on subjective happiness and found that mindfulness is a variable that increases happiness (Akın & Akın, 2015; Baer et al., 2012; Brown & Ryan, 2003; Campos et al., 2016; Carlson & Brown, 2005; Drake et al., 2008Goodman & Schorling, 2012; Hollis-Walker & Colosmo, 2011: Pak et al., 2013; Shier & Graham, 2011). In the light of the relevant theoretical background and literature, the hypothesis and the research model are presented below in Figure 1:

H2: Mindfulness has a moderating effect on the relationship between perceived loneliness and happiness. Mindfulness reduces the strength of the negative relationship between them.

Figure 1: Research Model
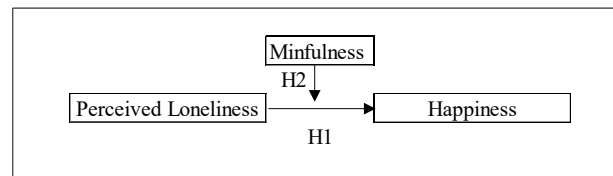
Method

Sample and Data

Research on happiness, loneliness and mindfulness among service sector employees is important as it has the potential to impact the mental health, productivity, and general well-being of individuals in the workforce as well as influence policy and practice in organizations and society at large. SPSS 26 Process Macro (Model 1) and AMOS 24 programs were used to test the relationship between happiness, mindfulness, and perceived loneliness. Data were collected online from service sector employees in Ankara using convenience sampling method. The survey measured happiness, mindfulness, and perceived loneliness and demographic variables. 206 questionnaires were included in the study. The n > 8m+50 rule was applied to determine the adequate sample size (Tabachnick & Fidell, 2007). m= number of variables (happiness, mindfulness, and perceived loneliness) . Since 8×4+ 50= 82, it is considered sufficient to reach at least 82 samples. In addition, for the sample to be analyzed using AMOS, the sample size should be at least 200 (Kline, 2011).

Measures

The survey applied to participants consists of two sections. The first part of the survey covers happiness, mindfulness, and perceived loneliness scale. The second section contains statements relating to variables of gender, age and total working time.

Oxford Happiness Scale Short Form - Oxford Happiness Scale Short Form was developed by Hills and Argyle (2002) and adapted into Turkish by Doğan and Akıncı Çötok (2011). The scale, which was developed to evaluate the happiness levels of individuals, consists of 7 items and one dimension in five-point Likert type. The items of the developed scale consist of 'strongly disagree, disagree, somewhat agree, agree, strongly agree' from 1 to 5, respectively.

The mindfulness awareness scale (MAAS)- "The Mindful Attention" developed by Brown and Ryan (2003) Awareness (MAAS) Scale" was translated into Turkish by Özyeşil et al. (2011). The scale consists of 15 items and a single dimension. Participants were asked to complete each were asked to rate a statement using a 5-point Likert scale. Accordingly, "5=Strongly Agree"; "4=Agree"; "3=Neither Agree nor Disagree"; "2=Disagree"; "1=Strongly Disagree".

UCLA Loneliness Scale (ULS-8)- developed by Russell, Peplau and Cutrona (1980). This scale consists of 8 questions in total. As the score increases in the scale, the loneliness score also increases. In the scale, 2 items are reverse coded and 6 items are straight coded. In the study conducted by Hays and DiMatteo (1987), the Cronbach alpha internal consistency reliability coefficient of the scale was calculated as 0.91 (Hays & DiMatteo, 1987). Turkish adaptation, validity, and reliability studies of the scale on university students were conducted by Doğan et al. in 2011. The Cronbach alpha internal consistency reliability coefficient of the scale was calculated as 0.72 (Doğan et al., 2011).

Results

Demographics of Participants

The sample of the study consists of 206 service employees working in Ankara. According to the analysis results, 44% (n=90) of 206 participants were female and 56% (n=106) were male. Age was asked as an open-ended question. The average age was 36 years. Of the individuals participating in the study, 30% (n=61) have been working in the same workplace for less than 1 year; 31% (n=64) for 1-5 years; 16% (n=32) for 6-10 years; 11% (n=23) for 11-15 years; 13% (n=26) for more than 16 years.

Preliminary Analysis

At this stage, the data cleaning process suggested by Tabachnick and Fidell (2001: 63) was performed first. The data were analyzed with the help of SPSS 26 program. Firstly, missing data and outliers were examined, reverse coding, normality, and linearity tests were carried out. Since the data will be subjected to Confirmatory Factor Analysis in AMOS, they must also pass the linearity assumption (Tabachnick & Fidell, 2001). Normality test was conducted and accordingly, kurtosis and skewness coefficients of the scale items were checked first. Since kurtosis > |3| and skewness > |3| for all statements (Tabachnick & Fidell, 2001), it can be said that the data are normally distributed. Then, the mean, standard deviation, number of items and cronbach's alpha values of the scales were analyzed. The results are presented in Table 1.

Table 1: Descriptive Statistics

Variables	Mean	SD	Skewness	Kurtosis	Item number	α
Perceived Loneliness	4.08	3.75	4.12	19	8	0.86
Happiness	0.59	0.64	0.78	4	7	0.78
Mindfulness	0.87	0.52	0.23	4	15	0.79

Note: α: Cronbach's alpha

Confirmatory Factor Analysis

Following the preliminary analyses, confirmatory factor analyses (CFA) were conducted on the scales used in the study. CFA can validate the scales used in the study and ensure that the relevant components are measured accurately.

Table 2: CFA Results

Scales	$\Delta X^2/df$	RMSEA	CFI	GFI	AGFI
Perceived Loneliness	1.766	.068	.986	.982	.959
Happiness	2.285	.087	.879	.975	.934
Mindfulness	2.510	.07	.982	.968	.890

Note: RMSEA: Root mean square error approximation, GFI: Goodness of fit index, AGFI: Adjusted goodness of fit index, CFI: Comparative fit index, $\Delta X2/sd$: Chi-Square/degrees of freedom

The CFA results of the scales were analyzed and presented in Table 2. According to the analysis, the fit statistics of all scales were found to be within acceptable limits (GFI, CFI, AGFI >0.90; RMSEA <0.08; $\Delta X2/sd$ <3). These values indicate that the scales used in the study have good reliability and validity (Şimşek, 2020: 14).

Correlation Analysis

Correlation analysis was conducted to explore the relationships between the variables. The fact that the correlation coefficients are not above 0.70 indicates that the variables in this study are not highly correlated with each other (Tabachnick and Fidell, 2001: 65) and multicollinearity is not a concern. The results of the analysis are presented in Table 3.

Table 3: Correlation Analysis

	Variables	1	2	3
1	Perceived Loneliness	1	-0.36**	0.22
2	Happiness		1	0.42**
3	Mindfulness			1

When the correlations between the variables were analyzed, a positive and significant relationship was found between perceived loneliness (r=-0.36, p<0.01) and happiness, but there is not a significant relationship between perceived loneliness and mindfulness. There is also a positive and significant relationship found between mindfulness (r=0.42, p<0.01) and happiness.

Moderation Analysis

The moderating effects of mindfulness on the effect of perceived loneliness and happiness were examined using the Process macro (Model 1) in SPSS, and the results supported H1 and H2 hypotheses. The results of the analysis are given in Table 4. Following the identification of

the moderating relationship, a graph was created to show the effects of the moderating variable at three different levels of perceived loneliness on happiness. The graph is shown in Figure 2. The conditional effects of the focus predictor at the moderator value are displayed in Table 5.

Tablo 4: Moderation Table

	B	SE	0,95	
			Lower	Upper
Constant	11.6176**	2.7172	6.2698	16.9654
Perceived Loneliness	-2.4749	0.7473	-3.9484	-1.0015
Mindfulness	-2.0402	0.6529	-3.3276	-0.7528
Perceived Loneliness* Mindfulness	**0.5105**	**0.1780**	**0.1595**	**0.8616**

b = Non-standardized regression coefficient, SE = Standard error, 95%CI, n = 201 (5,000 bootstrap samples), *p< 0,05, **p< 0,01, ***p< 0,001

The moderation impact of mindfulness on the link between employees' perceptions of loneliness and happiness was tested using regression analysis using the bootstrap approach (Hayes, 2013: 36). When the results were analyzed, it was determined that perceived loneliness negatively and significantly affected happiness (p<.001). H1 was accepted. Table 4 presents the moderation analysis' findings. It was discovered that perceived loneliness and mindfulness had significant interaction effects on happiness (b =.5105; 95% CI [.1595,.8616], t = 2.002, p<0.05). The findings reveal that H2 was accepted. Examining the analysis's findings reveals that the predictor variables account for about %11 of happiness. About 23% more variance is explained by the interactional term.

Figure 2. The Moderator Role of Mindfulness on the Relationship Between Perceived Loneliness and Happiness
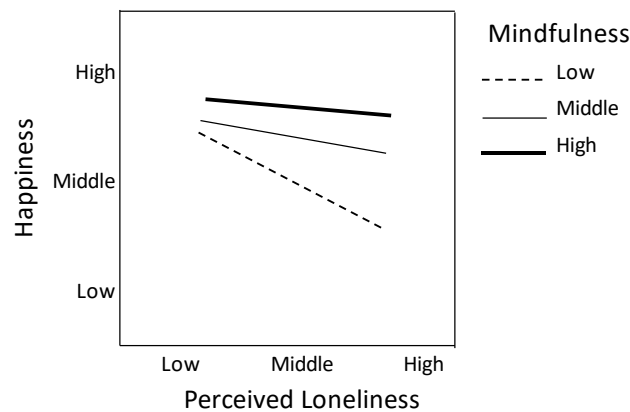
When the graph in Figure 2 is examined, as the level of mindfulness of service sector personnel increases, the strength of the negative effect of service personnel's perceived loneliness level on happiness will decrease.

Table 5: Conditional Effects of The Focal Predictor at Values of Mindfulness

Mind.	t	p	LLCI	ULCI
3.5513	-4.3304	0.000	-0.9632	-0.3605
4.0591	-3.6490	0.003	-0.6201	-0.1850
4.5670	-1.0887	0.008	-0.4029	-0.1163

Mind: Mindfulness, LLCI: Lower limit confidence interval, ULCI: Upper limit confidence interval

When we examined the Table 5, it was revealed that, the level of mindfulness was low, the positive relationship between perceived loneliness and happiness was positive and significant (b= 3.5513, 95% CI [-0.9632, -0.3605], t= -4.3304, p<0.001). As mindfulness was moderate, the relationship between perceived loneliness and happiness was positive and significant (b= 4.0591, 95% CI [-0.6201, -0.1850], t= -3.6490, p<0.001). When the level of mindfulness was high, the relationship between perceived loneliness and happiness was positive and significant (b= 4.5670, 95% CI [-0.4029, -0.1163], t= -1.0887, p<0.001). According to the graph, as the level of mindfulness increases, the strength of the negative effect between the two variables decreases.

Conclusion and Discussion

The moderating effects of mindfulness on the relationship between perceived loneliness and happiness relationship were examined within the scope of Job-Demands Resources Model (Bakker and Demerouti, 2007) The data gathered from 206 service sector employees in Ankara, Türkiye. AMOS 23 was used for confirmatory factor analysis. The SPSS 26 Process Macro (Model 1) was used when examining the moderating effect.

The moderating effect of mindfulness on perceived loneliness and happiness was explained by JDR (Bakker and Demerouti, 2007). In line with the literature (Tuzgöl-Dost, 2007), the effect of perceived loneliness on happiness was found to be negative and significant. Hypothesis H1 is accepted. In other words, employees who feel lonely also feel unhappy. Individuals who experience loneliness have low life satisfaction and therefore feel lonely (Yılmaz & Altınok, 2009). When the moderator effect was examined, a moderator relationship was found in accordance with the theoretical framework and literature (Tatlıoğlu & Deniz, 2011). Mindfulness weakens the strength of the negative effect of perceived loneliness on happiness. H2 is accepted. A high level of mindfulness enables individuals to be less affected by negative emotions and contributes positively to their happiness levels (Özyeşil, 2011).

Happy employees mean a happy workplace. When employees are happy, they are more motivated and engaged in their work. Working in a happy and peaceful environment increases work engagement, productivity, and willingness to come to work (Manion, 2003; Biswas-Diener & Dean, 2007). In addition, happy employees are more likely to have better relationships with coworkers and managers. This positive social dynamic foster teamwork, collaboration, and a supportive work culture. In addition, it is argued that happy employees exhibit more voluntary and prosocial behaviors and are willing to take on extra responsibilities (Jain et al., 2009; Zakaria et al., 2014). Furthermore, research has shown that happy employees are more likely to be creative and innovative in their work, which leads to increased problem-solving skills and greater adaptability to change (Amabile et al., 2005; George & Zhou, 2007). This can lead to improved performance and competitive advantage for the organization. Moreover, happy employees tend to have lower levels of stress and burnout, which can lead to lower absenteeism and turnover rates (Wright and Cropanzano, 2007). As a result, a happy workplace not only benefits employees but also leads to increased overall organizational performance and success.

In this context, if there is no direct intervention to perceived loneliness, attempts should be made to increase the level of mindfulness. Employees with a high level of mindfulness will be able to overcome this situation easily even if they feel lonely. They will be minimally affected by the possible negative effects of loneliness and their happiness levels will not decrease.

Recommendations and Limitations

Mindfulness is a skill that anyone can develop and it helps the individual to step out of conditioning and see what is happening immediately (Germer, 2004). For example, mindfulness-based stress reduction programs teach people techniques to cope with stress (relaxation techniques, mindful yoga, etc.). Research shows that mindfulness meditation interventions that train inner skills in monitoring present moment experiences with an acceptance orientation, mindfulness interventions can reduce loneliness, increase communication and relationship satisfaction, and promote compassion towards others (Lindsay et al., 2018). Since a high level of mindfulness helps to reduce the negative effects of possible negative emotional states or behaviors, interventions for mindfulness should be made in workplaces and trainings should be provided in this direction.

One of the limitations of the study is that it was collected using only questionnaire method. This limitation can be overcome by using both qualitative and quantitative research techniques (Vijver & Leung, 1997). The fact that the study was collected from a single city and a single sector is also one of its limitations. Because the study data consisted of individual assessments, were obtained from a single source at a single time, and independent and dependent variables were measured simultaneously, it is believed that it may lead to a common method variance error. To avoid this problem, participants' identifying information was not collected. In addition, according to the results of Harman's single factor test to identify common method differences, no general factor was identified that explained most of the variation in the scale (Podsakoff et al., 2012).

REFERENCES

Akin, A., & Akin, U. (2015). Friendship quality and subjective happiness: The mediator role of subjective vitality. *Egitim ve Bilim*, *40*(177).

Ahmet, A. K. I. N., & SATICI, S. A. (2011). Öznel mutluluk ölçeği: geçerlik ve güvenirlik çalişmasi. *Sakarya Üniversitesi Eğitim Fakültesi Dergisi*, *21*(21), 65-78.

Amabile, T. M., Barsade, S. G., Mueller, J. S., & Staw, B. M. (2005). Affect and creativity at work. *Administrative Science Quarterly*, *50*(3), 367-403.

Baer, R. A., Carmody, J., & Hunsinger, M. (2012). Weekly change in mindfulness and perceived stress in a mindfulness-based stress reduction program. *Journal of Clinical Psychology*, *68*(7), 755-765.

Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of Managerial Psychology*, *22*(3), 309-328.

Batigün, A. D. (2008). Intihar Olasiligi ve Cinsiyet: Iletisim Becerileri, Yasami Sürdürme Nedenleri, Yalnizlik ve Umutsuzluk Açisindan Bir Inceleme. *Türk Psikoloji Dergisi*, *23*(62), 65.

Biswas-Diener, R., & Dean, B. (2007). Positive psychology coaching: Putting the science of happiness to work for your clients. John Wiley & Sons.

Biswas-Diener, R., Diener, E., & Tamir, M. (2004). The psychology of subjective well-being. *Daedalus*, *133*(2), 18-25.

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, *84*(4), 822.

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, *84*(4), 822.

Brown, K. W., Ryan, R. M., & Creswell, J. D. (2007). Mindfulness: Theoretical foundations and evidence for its salutary effects. *Psychological Inquiry*, *18*(4), 211-237.

Campos, D., Cebolla, A., Quero, S., Bretón-López, J., Botella, C., Soler, J., ... & Baños, R. M. (2016). Meditation and happiness: Mindfulness and self-compassion may mediate the meditation–happiness relationship. *Personality and Individual Differences*, *93*, 80-85.

Carlson, L. E., & Brown, K. W. (2005). Validation of the Mindful Attention Awareness Scale in a cancer population. *Journal of Psychosomatic Research*, *58*(1), 29-33.

Cengiz, R., Serdar, E. ve Donuk, B. (2016), Üniversite Öğrencilerinin Bilinçli Farkındalık ve Girişimcilik Düzeylerinin İncelenmesi, *International Journal of Social Sciences and Education Research, 2*(4), 1321-1328.

Chen, G., Gully, S. M., & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational Research Methods, 4,* 62– 83.

Cohen, S. B. (2002). Happiness and the immune system. *Positive Health, 82* , 9– 12.

Dahlberg, L., Agahi, N., & Lennartsson, C. (2018). Lonelier than ever? Loneliness of older people over two decades. *Archives of Gerontology and Geriatrics*, *75*, 96-103.

Demir, Y., & Kutlu, M. (2016). Üniversite öğrencilerinde sosyal etkileşim kaygısı ile mutluluk arasındaki ilişki: yalnızlığın aracı rolü. *Gazi Üniversitesi Gazi Eğitim Fakültesi Dergisi*, *36*(1).

Doğan, T., & Çötok, N. A. (2011). Oxford mutluluk ölçeği kısa formunun Türkçe uyarlaması: Geçerlik ve güvenirlik çalışması [Adaptation of the short form of the Oxford happiness questionnaire into Turkish: A validity and reliability study]. *Türk Psikolojik Danışma ve Rehberlik Dergisi*, *4*(36), 165-172.

Doğan, T., Çetin, B., & Sungur, M. Z. (2009). İş yaşamında yalnızlık ölçeği Türkçe formunun geçerlilik ve güvenilirlik çalışması. *Anadolu Psikiyatri Dergisi*, *10*(6), 271-277.

Doğan, T., Çötok, N. A., & Tekin, E. G. (2011). Reliability and validity of the Turkish Version of the UCLA Loneliness Scale (ULS-8) among university students. *Procedia-Social and Behavioral Sciences*, *15*, 2058-2062.

Drake, L., Duncan, E., Sutherland, F., Abernethy, C., & Henry, C. (2008). Time perspective and correlates of wellbeing. *Time & Society*, *17*(1), 47-61.

Frey, B. S., & Stutzer, A. (2002). What can economists learn from happiness research?. *Journal of Economic literature*, *40*(2), 402-435.

George, J. M., & Zhou, J. (2007). Dual tuning in a supportive context: Joint contributions of positive mood, negative mood, and supervisory behaviors to employee creativity. *Academy of Management Journal*, *50*(3), 605-622.

Germer, C. K. (2004). What is Mindfulness? And Why is it Important for Therapists. *Insight Journal, Fall 2004*, *24*, 29.

Germer, C. K. (2009). The mindful path to self-compassion: Freeing yourself from destructive thoughts and emotions. Hove: Routledge

Goodman, M. J., & Schorling, J. B. (2012). A mindfulness course decreases burnout and improves well-being among healthcare providers. *The International Journal of Psychiatry in Medicine*, *43*(2), 119-128.

Hawkley, L. C., & Cacioppo, J. T. (2010). Loneliness matters: A theoretical and empirical review of consequences and mechanisms. *Annals of Behavioral Medicine*, *40*(2), 218-227.

Hayes, A. F. (2013). Mediation, moderation, and conditional process analysis. Introduction to Mediation, Moderation, and Conditional Process Analysis: A regression-Based Approach, 1, 20.

Hays, R. D., & DiMatteo, M. R. (1987). A short-form measure of loneliness. *Journal of Personality Assessment*, *51*(1), 69-81.

Helliwell, J. F., Layard, R., Sachs, J. D., De Neve, J.-E., Aknin, L. B., & Wang, S. (Eds.). (2023). World Happiness Report 2023. New York: Sustainable Development Solutions Network.

Hills, P., & Argyle, M. (2002). The Oxford Happiness Questionnaire: a compact scale for the measurement of psychological well-being. *Personality and Individual Differences*, *33*(7), 1073-1082.

Hobfoll, S. E., Johnson, R. J., Ennis, N., & Jackson, A. P. (2003). Resource loss, resource gain, and emotional outcomes among inner city women. *Journal of Personality and Social Psychology*, *84*(3), 632.

Hollis-Walker, L., & Colosimo, K. (2011). Mindfulness, self-compassion, and happiness in non-meditators: A theoretical and empirical examination. *Personality and Individual Differences*, *50*(2), 222-227.

Jain, A. K., Giga, S. I., & Cooper, C. L. (2009). Employee wellbeing, control and organizational commitment. *Leadership & Organization Development Journal*, *30*(3), 256-273.

Joubert, C. E. (1992). Happiness, time consciousness, and subjective life expectancy. *Perceptual and Motor Skills ,74* , 649–650

Kabat-Zinn, J. (1994). Wherever you go, there you are: Mindfulness meditation in everyday life. Hachette UK.

Kabat-Zinn, J. (2009). Clinical handbook of mindfulness. Netherland: Springer

Khan, Richard, (2009) The Perception Of Happiness: Role Of Age And Culture, Doctoral Dissertation, Kean University, New Jersey.

Kline, R. B. (2011). Convergence of structural equation modeling and multilevel modeling. *The SAGE Handbook of Innovation in Social Research Methods*, 562-589.

Levine, M. (2000). The Positive Psychology of Buddhism and Yoga: Paths to a Mature Happiness. New York: Psychology Press.

Lindsay, E. K., Young, S., Smyth, J. M., Brown, K. W., & Creswell, J. D. (2018). Acceptance lowers stress reactivity: Dismantling mindfulness training in a randomized controlled trial. *Psychoneuroendocrinology*, *87*, 63-73.

Lyubomirsky, S., & Lepper, H. S. (1999). A measure of subjective happiness: Preliminary reliability and construct validation. *Social Indicators Research*, *46*, 137-155.

Manion, Jo, (2003) ''Joy At Work!: Creating A Positive Workplace'', *Journal Of Nursing Administration 33,* 652-659.

Odabaşı, Ş. (2016). Üniversite öğrencilerinin online oyun bağımlılığı düzeylerinin öznel mutluluk düzeyleriyle ilişkisi. Yayımlanmamış yüksek lisans tezi. Sakarya Üniversitesi, Sakarya.

Özyeşil, Z. (2011). *Öz anlayış ve bilinçli farkındalık*. Maya Akademi.

Özyeşil, Z., Arslan, C., Kesici, Ş., & Deniz, M. E. (2011). Bilinçli farkındalık ölçeği'ni Türkçeye uyarlama çalışması. *Eğitim ve Bilim*, *36*(160).

Pak, A. V., Ahmadian, H., & Rahimi, E. (2013). Efficacy of mindfulness training on enhancing happiness in women with pregnancy diabetes. Advances in Environmental Biology, 4203-4208.

Pepping, C. A., O'Donovan, A., & Davis, P. J. (2013). The positive effects of mindfulness on self-esteem. *The Journal of Positive Psychology*, *8*(5), 376-386.

Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology*, *63*, 539-569.

Russell, D. W., Cutrona, C. E., McRae, C., & Gomez, M. (2012). Is loneliness the same as being alone?. *The Journal of Psychology*, *146*(1-2), 7-22.

Russell, D., Peplau, L. A., & Cutrona, C. E. (1980). The revised UCLA Loneliness Scale: concurrent and discriminant validity evidence. *Journal of personality and social psychology*, *39*(3), 472.

Scheier, M. F., & Carver, C. S. (1992). Effects of optimism on psychological and physical well-being: Theoretical overview and empirical update. *Cognitive Therapy and Research*, *16*(2), 201-228.

Schutte, N. S., & Malouff, J. M. (2011). Emotional intelligence mediates the relationship between mindfulness and subjective well-being. *Personality and Individual Differences*, *50*(7), 1116-1119.

Siegel, R. D., Germer, C. K. ve Olendzki, A. (2009), Mindfulness: What Is It? Where Did It Come From?, *Clinical Handbook of Mindfulness,* 17-35.

Şimşek, Ö. F. (2020). Yapisal eşitlik modellemesine giriş: Temel ilkeler ve LISREL uygulamalari. Ömer Faruk Şimşek.

Tabachnick, B. G., & Fidell, L. S. (2001). SAS for Windows workbook for Tabachnick and Fidell: using multivariate statistics. *(No Title)*.

Tatlılıoğlu, K. ve Deniz M. E. (2011). Farklı öz-anlayış düzeylerine sahip üniversite öğrencilerinin karar vermede öz-saygı, karar verme stilleri ve kişilik özelliklerinin değerlendirilmesi. *Bingöl Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 1*(2), 19-41.

Tuzgöl-Dost, M. (2007). Examining life satisfaction levels of university students in terms of some variables. *Pamukkale Universitesi Egitim Fakultesi Dergisi-Pamukkale University Journal of Education*, 22.

Van de Vijver, F., & Leung, K. (1997). Methods and data analysis of comparative research. *Handbook of Cross-cultural Psychology*, *1*, 257-300.

Wright, T. A., & Cropanzano, R. (2007). The happy/productive worker thesis revisited. *In Research in Personnel and Human Resources Management*. *Vol. 26,* pp. 269-307. Emerald Group Publishing Limited.

Zakaria, Maziana vd., (2014) ''The Role of Wellbeing On Performance İn Services Sector'', Procedia-*Social And Behavioral Sciences, 164*, 358-365.

New Media Disorders: A Different Approach to New Generation on Media[*]

Handan Güler İplikçi[1]
Mikail Batu[2]

Introduction

Most people of all ages use new media intensively. The uncontrolled use of new media, on the other hand, paves the way for several physical and mental diseases. The disorders caused by social media, which is at the center of our lives with many examples such as sections from business life and daily life, various stories, likes, continuous flow of retweets, are notably common in users.

The need for people to be loved, liked and appreciated is an innate need. In the digital age, where socialization is counted with the number of followers, the impressions of other people about them have become an obsession for some individuals. At the basis of this obsession, there appears such problems as "What do the others talk?", "What do other people think?". Individuals' fear of being asocial, being excluded from the group of their friends, missing out the latest news or being behind the times can be regarded as factors that trigger the uncontrolled and invalidly use of social media.

While it is considered normal for the people to feel stressed and frustrated when any of their messages shared on social media do not have the interest it deserves, it may be admitted as an obsession to send their posts within a certain time interval (ex: prime time) and try to enable that more users see them. Excessive use of social media can cause people to lose their ties with real life and become insensitive to the outside world. Likewise, it is a known fact that excessive use of digital media causes internet and technology addiction.

Using social media and technology as a key to happiness become a basis for new media disorders. The perception of the digital world is quite different from the perception of the real world. The instant and mutual communication creates the necessity for the user to be constantly online. It is because the flow in digital media (Facebook, Twitter, Instagram, WhatsApp etc.) is very fast, sharing hundreds of messages at the same time encourages users to differentiate and the need to be followed. Digital media users recreate their selfies through popular notions in order to differentiate and increase the number of their friends / followers. Users can get the image they desire by filtering the photos and changing them with the help of some programs, and can introduce themselves as an intellectual by quoting from a few books. Briefly, people can easily turn into the perfect person in their perceptions thanks to technology. This causes to deteriorate their perception of reality. They connect to the "perfect" life they have created in the virtual world, begins not to enjoy the real life and can isolate themselves from social environment in their real life. For this reason, new media disorders are more common in children and young people who use technology uncontrollably and have difficulties to distinguish the real world and the virtual world.

[1] Assistant Prof., Celal Bayar Unicersity, Public Relations and Publicity Department, handan.guler@cbu.edu.tr
[2] Assoc.Prof., Necmettin Erbakan University, Public Relations and Advertising Department, mikail.batu@hotmail.com

It is quite easy to have a reputation in digital media. It is possible to become famous by increasing the number of followers with many options such as displaying the body, exhibiting private life, joining in extraordinary activities. Exaggerated appreciation of people in the virtual world, who are not adequately appreciated in their real life, can cause their narcissistic feelings to become stronger. Narcissism underlies most of the new media disorders. Narcissistic people lack empathy, and can easily make devastating criticism against others in digital environment. This brings up the notion of "cyberbullying", which it is heard quite frequently nowadays. Cyberbullying can be defined as disturbing people through digital media. Such behaviors as using unauthorized photos, harassing / threatening with messages and images, insulting, making negative and devastating comments on posts, using someone's photos or videos to make fun of, stealing the social media accounts etc. are examples of cyberbullying. People need to create a strong profile in order not to face cyberbullying. For this reason, it is important that they support the users, who are also close to them in real life, more than the number of their friends / followers who are only in their virtual life. While having a large number of followers / friends is a status symbol, the low number of friends / followers affects oppositely and can be regarded as an embarrassing status.

A literature review was made in this study about Mouse-Keyboard Disease, Ego Surfing, Enfornography, Google Tracking, Cyberhondria, Photolurking, Crackberrry, Cheesepodding, Blog Exposure, Nomophobia, Hikikomori, FOMO, Youtube Narcissism, Myspace Counterfeiting, Wikipediholism caused by unconscious or overuse of new media, and some suggestions are made about these disorders.

New Media and Its Disorders

Nowadays, new communication environments are called new media. New media is a notion that emerged as a result of researches on information and communication technologies in the 1970s by researchers studying on psychological, social, cultural, political and economic subjects. Briefly, it consists of the new communication environments, which combine different digital environments, and the integrity of different technical applications such as sound, image, and text. One of the main reasons for new media to be regarded as "new" is the economic, social, cultural level and understanding of the current era.

The notion of new media dates back to the 1970s. It is a concept created by researchers who conducted psychological, social, cultural, economic and political studies in information and communication based research in these years (Dilmen, 2007: 114). However, the meaning of the notion has changed towards 2000s and has gained its current meaning with internet technology. Although the definitions of new media differ nowadays, there are electronic communication channels such as social network websites, blogs, chat rooms, discussion boards, and websites that rate customer service, which offer broad opportunities for two-way communication between marketers and consumers (Bernhardt & Mays, 2012: 132). According to a study conducted by Morgan Stanley in 2004; It has been determined that radio can reach 50 million users in 38 years, television in 13 years and internet in 5 years (Turgut, 2010). Accordingly, it can be said that new media can have superior features in terms of time and opportunities compared to other media tools.

With the rapid development of information communication technologies in the millennium, a new culture and systems have emerged. Generation Y has been the fastest to keep up with technological change and transformation. Generation Y has a feature that is born with new technology and can not be addicted to these technologies and use the opportunities of these technologies skillfully. There are different reasons about this such as the presence of all kinds of new communication tools around this mass and the fact that these technologies get cheaper gradually and their usage become easier. The 5 characteristics of Generation Y are listed below (Syrett & Lamminman, 2004: 62):

- Sincerity: They have the skill to establish and maintain close relationships via the Internet,
- Loyalty: They have tightly protected personal networks and less consistent or reliable feelings for brands and employers,
- Awareness: They have the awareness to act differently by updating themselves in subjects from social issues inside and outside the business to transparency, honesty, brand management or human resources strategies,
- Balance: Generation Y is prepared and willing to adopt a 24/7 lifestyle, on the line between the work and the personal life.
- Risk: They are open to frequent changes and tend to be open, flexible and mobile,

The characteristics mentioned above for Generation Y have consistent content for the use of new media. In the past century, travelers, passengers, poets or bohemian characters have left their places to virtual travelers who can "move without displacement" in the digital era (Köse, 2012: 138). Accordingly, the fact that the young population uses new communication technologies at the rate of addiction may indicate that they will / may encounter with new disorders (Adnan, 20016: 145). Addictons are divided into two as chemical and behavioral addiction in general framework. Technology addiction is also handled in the title of behavioral addictions (Olcay, 2018: 95).

Some of the disorders that can be regarded as illnesses of the 21st century are mostly seen in children and young people, and can negatively affect the physical and psychological development of this mass. While new media disorders cause emotions such as anxiety, fear, and unease in the new users of new media, it can also cause some physiological side effects such as dyspnea and dizziness (Duygulu, 2017). When the literature is examined, it is observed that these illnesses are given names and specific definitions are made. Fisher (2006), in his article in Newscientist magazine, mentions the disorders such as Ego Surfing, Google Tracking, Crackberry, Cheesepodding, Blog Exposure, Myspace Counterfeiting. In addition, Psychologist Duygulu (2017) also states notions such as Fomo, Nomophobia, Stalking, Photolurking, Cyberhondrics. Detailed information about these disorders is given below.
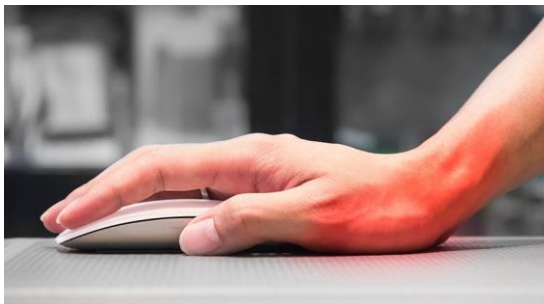
Fig. 1: The wrong use related to Mouse-Keyboard Disesase Source: (www.tr.nature-via.com)

Mouse-Keyboard Disease: It is felt by numbness and pain in the wrists as a result of the same movements repeated by using the mouse and keyboard. It can be defined as a type of nerve compression disorder. The increase in the use of technology, especially in recent years, has caused the spread of mouse-keyboard disease. In general, new media user makes an average of 7000-8000 clicks per day and moves the mouse about 1 km (Sabah Newspaper, 2018). Mouse-keyboard disease is also referred to as carpal tunnel syndrome in some sources. With mouse-keyboard disease, pain may be felt in the wrists and pain may occur with hand movement after a while and edema in the hand joints may be in the next phase. This disorder, which is felt by the use of excessive mouse and keyboards, can also occur as a result of misuse. The computer side of the keyboard should not be high and should be used as straight as possible. The same is also suitable to mouse use.

Ego Surfing (Ego Surfing): Ego Surfing is a disorder that people who search their own name in a digital environment in specific periods and examine what information is available about themselves on digital media (Özsoy, 2009: 652). Ego Surfing can also be called "online narcissism". Narcissism is the person's over-indulgence and exaggerated sense of admiration about herself. Ego Surfing or online narcissism can also be explained as the person's effort to maintain the feeling of excessive self-love on digital media. In addition, it can be regarded as the reflection of this disorder that users frequently control their shares, comments, likes and follows (Kısaç and Şensoy, 2017: 381). It is obvious that information about a person, which is defined as "digital footprint" and easily accessible, is significant. This information is probably seen by a number of different people (Betty Chan-Bauza, 2011). Although tracking our digital footprint is crucial for our security, making this an ego satisfaction tool, obsessively tracking and updating our data in the digital environment are the main source of this disorder.

Fig. 2: A humoruous view to Ego Surfing, Source: (www.career-intelligence.com)

Infornography (Infomania): The notion "initially appeared in the 1980s" (Aras, 2009). "This notion, which is derived from the words pornography and information, is defined as "trying to meet the unending need for information in the digital environment" (Özsoy, 2009: 652). In daily life, most people need new information on any subject and use the internet in the shortest way for this information. In order to explain a situation as an infornography, one must constantly use or desire to use new media in every subject that comes to her mind. People within the scope of the definition of this notion have a strong motivational desire to check or gather new information via their mobile phones or computers. Levitin (2014) describes smartphones as Digital Swiss Army Knife considering the effects of infornography on our mind, and mentions that it "causes our brain busier than ever". To Daniel J Levitin, repetitive task switching between digital environments causes anxiety and increases the levels of stress hormone (cortisol) in the brain. It is mentioned that this causes aggressive and compulsive behavior.

Google Tracking / Stalking: It is explained that new media users try to reach information about the people they desire from search engines in specific periods and make secret investigations against them (Kısaç & Şensoy, 2017: 381). According to another definition, it can be identified as "a felony to follow or surveil someone illegally" (Cambridge Online Dictionary). The user desires to constantly follow and know the events, changes and flow of person's life that s/he stalks. This increases with the development and accessibility of new communication technologies. For example, according to the news of BBC Reporter Tom Edwards (2018), there has been a huge increase in the number of incidents that was reported from Herefordshire and Worcestershire, with stalking of almost 300 cases in the past 12 months.

Fig. 3: Google secures searches related to health, Source: (www.hurriyet.com.tr).

Cyberchondria: It explains an increase in false anxiety about the review of search results and literature on the web (White and Horvitz, 2009: 1). The term Cyberchondria has been used since 1999 by the studies of Harris Interactive (Harris Poll, 1999; Ivanova, 2013: 60) in UK to learn about health on the Internet. After the 2000s, it became prominent with the news of Times and the use of the word increased with the development of technology in the following years

(Korucu, Oksay and Kocabaş; 2018: 212). The disorder known as Cyberhondriac is regarded as a form of Hypochondriasis, one of somatoform disorders (Yavuz, 2014). In a minor symptom, it is used to search for solutions or treatment methods from digital media instead of going to a doctor (Ceritli and Bal, 2017: 478). Cyberhondriacs try to diagnose themselves by searching any information, solution or treatment methods about the disorder they think. They are concerned about whether there is any information missing in this process, and they repeat their research. They worry about the symptoms of different, minor illnesses or the illness they hear of, and they go to different doctors one after another regarding the possibility of to be ill. If there are no problems in their examinations, they search the symptoms of the illness on the internet and think that they may be ill and relieve themselves with the expression "doctors did not understand". Also, they take various vitamin pills etc. for preventive purposes and prefer natural foods.
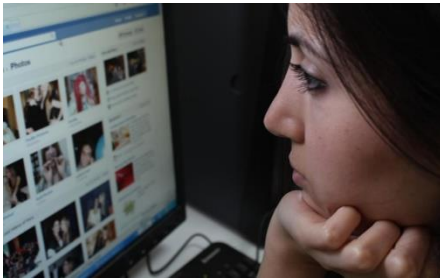
Fig. 4: Photolurking
Source: (www.emoji.com.tr)

Photolurking: Photolurking means that individuals spend hours by looking at the photos of people whom they know or do not know from any social networks of new media and does this frequently and involuntarily (Kısaç and Şensoy, 2017: 381). Photolurker, which is used within the scope of the same situation, means "the curious person looking at the photo files with the combination of the word "Photograph" in English and the word "lurker" which means "hidden, curious" (Olcay, 2018: 96-97). It may be possible to explain Photolurkers in different categories such as personal obsessions, leisure time, depression, inferiority complex, and problems with their selves.

Crackberry Addiction: CrackBerry is known as the word of the year in 2006 (Genosko, 2013: 147). It is used to explain the Blackberry addiction of people who go anywhere in the US, including toilet, bathroom, bed, or who frequently check their phones even at funerals, meetings, and classes (Sabah Newspaper: 2018). Nowadays, the meaning of the notion has expanded and it has become possible to talk about the same situation with different types of phones. It is possible to say that directors suffer from this disorder in particular.

Cheesepodding: It means that new media users download too many MP3s or similar videos that they cannot listen and continue this at every opportunity. This is regarded by some people as being a collector (Işıkdere, 2016), but people with Cheesepodding disorder can use every opportunity to download videos from digital media. For example, during a class, meeting or in the hospital, a command is given to phones to download videos. Archives are obtained at Terabyte level, but most of this archive is not used.
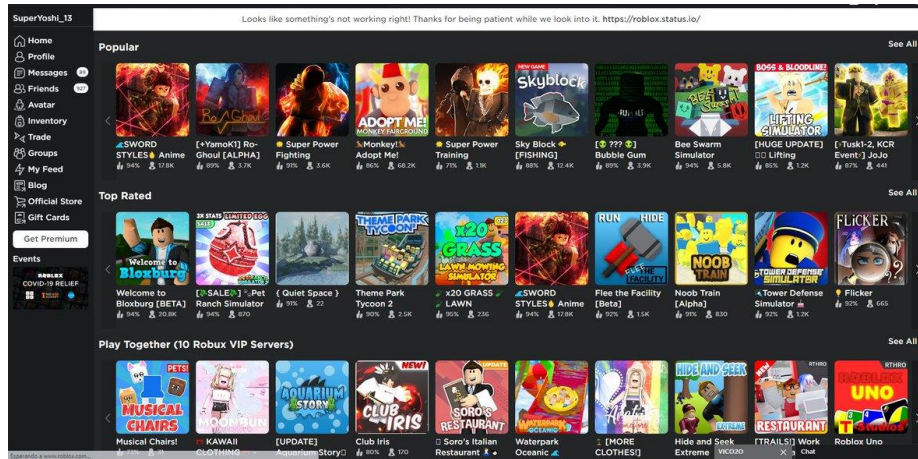
Fig. 5: Cheesepodding
Source: (twitter.com.tr).

Blog Streaking: It can be explained as "the curiosity of publishing information that should not be known and spread for the sake of everyone" (Hürriyet Newspaper, 2007) or exposing confidential or personal information that everyone is curious about. The blog streakers think that other people are curious about most of the information that can be considered confidential and they should be learned. For this reason, they take steps with the idea that their action is beneficial to the public and someone should do it. In the recent years, information such as aliens, camps of aliens in the world, bases of developed countries on the dark side of the moon, photographs, videos, memories of the private lives of some artists or celebrities are often shared on the Internet without being based on an official and concrete source or without permission from anyone, and these are the basic examples of blog streaking.

Nomophobia: The term "nombophobia" is an acronym for mobile phobia and initially appeared in 2008 during a study by British Post Office to examine the concerns of cell phone users (Securenvoy, 2012). It consists of the combination of the words "No Mobile Phone" in English. King et al. (2013: 141) used nomophobia to define the disorder or anxiety caused by people, who use virtual communication devices as a habit, do not have a mobile phone, MP, PC or any virtual communication tool with them at that moment. It is observed that people with this disorder feel incomplete and bad, experience stress or panic when they do not get them or cannot reach their phones, or they constantly desire to check their phones while they get their phones (Öz & Tortop, 2018: 147). It can be said that a person having these symptoms is in the first phase. It can be observed that happiness hormone, which secretes dopamine to brain, increases as the use of smart mobile devices increases. If the hormones, which give the user a sense of happiness, are secreted with the notification received by her device, this demonstrates that addiction phase increases (Polat, 2017: 168).

> "It was determined that more than half of the 2100 smartphone users participating in a study had nomophobia. In the same study, it was revealed that men had a higher risk of nomophobia than women. 58% of the male participants and 48% of the female participants reported that they felt anxious when they could not use their smartphones due to being out of battery or credit, theft or coverage. In this study, more than half of the participants reported that they never switched off their smartphones and checked that their smartphones were operational every five minutes or there were any calls or messages. In another study, it was determined that participants checked their phones 34 times a day" (cited by Daily Mail; Erdem, Türen and Kalkın; 2017: 4).

126

As it can be understood from the research results above, these moods of nomophobics can affect their social lives in some cases and cause various problems for the employees. This can be supported by some clinical findings and evaluated in the category of addiction.

Hikikomori: Hikikomori is a Japanese word for people who live their social daily lives on new media. Hikikomori, which means exactly "isolated from the world and lead a lonely life", is used nowadays in the sense of living in new media instead of real life (Karal, Fiş Erümit and Erümit, 2018: 27). Hikikomori, officially defined in Japan for the first time, was said for the situation when a group of people closed themselves to their homes for more than six months (Dziesinski, 2003). People, who are regarded as Hikikomori, show behaviors such as playing online games, browsing websites, reading blogs, chatting with other users (Hackley, Hackley, Bassiouni, 2018: 58). They meet their food needs with meals given in front of their doors by family members or related people. They meet their toilet needs at the widest time periods. In such people, Major depressive can be stated and depression can explain the source of social isolation (Teo, 2013).

FOMO (Fear of Missing Out): This disorder explains anxiety and fear that new media user feels because s/he cannot follow and miss out the latest news in their social network accounts. The user thinks that s/he experiences a huge loss when s/he misses out the latest news. In new media, the desire to know the posts of her close friends during the day is at a high level, and therefore s/he has a desire to frequently check the homepages of social networks. When new media users fail to meet this desire, they feel nervous and their anxiety increases (Kısaç & Şensoy, 2017: 381). S/he may feel the need to frequently refresh the page of her account, s/he may be unhappy when s/he is not online on social networks, and s/he may have an emotional breakdown if any post like idea or image does not get "like". Also, hypersensitivity and nervousness about issues that are not significant in the user's life can be regarded as symptoms of this disorder (Sivri, 2015).

Youtube Narcissism: Narcissism means that an individual likes herself excessively, has excessive self-esteem, believes that s/he is perfect and exposes herself (Suzana Amad, 2015: 31). Narcissism has a crucial point in psychoanalytic literature. Behavioral explanations of Freud about narcissism are listed below (Raskin & Terry, 1988: 890):

(a) S/he has an exaggerated attitudes about herself, including self-love, self-admiration, and self-righteousness.

(b) S/he has emotions with various fears or vulnerabilities about self-esteem, which includes fear of failure and to be left by beloved people.

(c) S/he has a general defensive mechanism that includes self-indulgence, pretending to be ideal, refusing, and marginalising.

(d) In addition to feelings such as self-efficacy and perfection, s/he creates motivation to meet the need for love by other people.

(e) A set of attitudes that characterize a person's relations with others.

Youtube Narcissism explains the situation of frequently publishing herself and her videos on the websites (Ceritli, N. Bal 2017: 478) in order to introduce herself on the basis of the information about narcissism aforementioned. Youtube users may tend to show themselves or convey their activities. However, they can enjoy making emphasis about themselves while conveying their activities. This emphasis may increase in the course of time, and they may desire to emphasize themselves more. For example, a person, who uses only her voice to the videos, can be show her image after a while. The person is delighted with a high number of likes and positive comments, and s/he may also experience unhappiness in the opposite situation.

Myspace Impersonation: This disorder was named from the fake accounts in the Myspace social network established in 2003. It explains that users in social networks show themselves as another person (usually the types of their imaginations) with different photographs and information and reflect themselves in a different identity (Sabah Newspaper, 2018). With the fake accounts created through Myspace in the early 2000s, many people were brought into court, and this spread to large masses as news flash in newspapers. This socially significant situation were written in the literature as Myspace impersonation. The existence of Myspace Impersonation occurs when a person takes on a new character in the digital environment or publishes someone else's account exactly like her own account. Being in a digital environment as a different person has a negative effect on their daily life. In some situations, the person may tend to behave like the one in her virtual environment in her daily life.

Wikipediholism: Those with this disorder desire to spend most of their time contributing to wikis like wikipedia. In addition to Wikipedia, this kind of tendency in Turkey can be used for people who have an addiction to send posts to collaborative social networks created by the posts of their users such as Ekşisözlük, Uludağsözlük, and İncisözlük.

The aforementioned disorders are the disorders that can occur in most users in daily life. In some cases, the person can cope with these disorders, and in other cases, a psychologist or psychiatrist may be needed to help. If precautions are not taken for these disorders, psychological or sociological problems may occur in the course of time and the entire life of a person may be affected. Today, it is not possible to think of new communication technologies separately from daily life, but it is necessary to use them properly. What this means for young people should be handled, in-depth research should be done, and great efforts should be made to enable the interest and sources of the society. New studies may be required for young people to put their lives in a "normal" order (Wong, 2012: 426). Consequently, according to Aras (2009) and Yavuz (2014), the following suggestions can be taken into consideration to cope with these disorders:

- Internet features of the phone or computer can be used at specific times of the day,
- Leisure time can be spent doing sports or going outside,
- E-mails can be checked periodically if it is not urgent,
- It can be avoided from sending unnecessary e-mails and the sendings can be written short,
- A person can switch to a phone that cannot connect to the Internet or at least use it during business hours,
- New applications may not be installed on the phone,
- Increasing bills can avoid from the internet by cancelling the campaign internet package,
- Mailbox can be kept empty,
- Good results after physical examinations mean that the body is very healthy. It is necessary to consider this only in this context.
- When the need to check the Internet occurs, it can be delayed for a specific period of time. As time passes, the need to check can decrease and it can be seen to postpone.
- Attention can be given to the outside world instead of one's own body, phone, and computer.
- A person can have a hobby on a new subject.

If the above suggestions are not significant for new media users, psychological support may be needed. As a result, with professional support, new media user can get rid of addiction and continue to her previous life. Some users may mention that they prefer this type of hobby to escape their previous lives. For these users, psychologist or psychiatrist support may be needed and therefore, the person may live her life in order.

Conclusion

With the development of new communication technologies, new media has an important role in daily life and facilitates the lives of most people, particularly young people. In addition to the advantages of the new media, it is possible to mention the negative aspects of several issues. New media applications, which are used in the degree of addiction, can deteriorate the order of daily life, affect social relations and create psychological problems. Some of the things that is need to be done about this issue are listed below:

- Sitting in front of the computer should be physically suitable to the body, the back should be physically appropriate for the body, and the table on which the computer is placed should not be above the wrists. In addition, the keyboard can be kept in flat and stress balls can be used to improve hand muscles during the day.
- It should be noted that nobody is perfect. Regarding the news that will boost one's ego is created by someone, it should be taken into consideration that this will end after a while. It should be known that s/he herself enriches new media exactly, and these media is valuable if s/he becomes who really s/he is.
- It should be taken into consideration that all of the information in digital media may not be correct. It should be taken steps with the idea that some information may have been written by people with bad intentions.
- It should be aware that following other people in digital environment may be a waste of time and these information will not create a solution.
- It should be taken into consideration that the most correct solution for human health can be found by specialists, the information learned from virtual environment can be misdiagnosed, and this may have vital consequences in the future.
- It should be taken into consideration that familiar or unfamiliar people whose photographs are frequently checked in new media are not aware of this, this admirable situation has no value in the real world and it is necessary to find new hobbies.
- It is known that it is important to work and to work via digital media in human life, and the relations established in this environment solve many issues, but it should be taken into consideration that social relations become meaningful in real life.
- It should be taken into consideration that human life is short and life becomes meaningful not with files in the archive but experiences.
- Many confidential information needs to be "probably secret". It should be noted that the deciphered information may be based on assumptions that are not taken from official sources.
- It should be taken into consideration that people did not carry a mobile phone with them before 2000s, they did not feel a deficiency in their lives, and life continued without a mobile phone.
- It is a serious situation that the person isolates herself in her room and becomes lonely, and this issue can be solved by socializing with the help of specialists.
- While pursuing to follow someone's life, one's own life passes, and time flows for new media user who pursues it like everyone else.
- It should not noted that everyone has many good and beautiful sides and different talents, and it should be taken into consideration what makes people beautiful and good is her determination and effort.
- No one has been proven to accomplish positive results by imitating the lives of others. For this reason, instead of pretending to be someone else, one should highlight her own values.
- Social network users may need information; If the person loses her own life order, it should be considered that there may be a problem.

- One should limit the time s/he will use new media. Networks used at specific periods or time zones can prevent problems.
- Hobbies can be acquired on subjects of interest by considering activities in the outside world. Sports can be done to make the body and the soul feel well.
- Internet connection to the house may not be established. Internet connection of the mobile phone can be turned off when a person arrives home.

In addition to aforementioned recommendations, professional support can be provided from a psychologist or psychiatrist. Unless these disorders are treated in a short time, they can cause major diseases in the long term. Also, families should be more careful and take necessary precautions by observing social lives of their children because young people cannot be aware of what they are doing in some situations.

REFERENCES

Books:

Genosko, G. (2013), When Technocultures Collide Innovation from Below and the Struggle for Autonomy, Canada: Wilfrid Laurier University Press.

Karal, H.; Erümit, S., F. and Erümit, A., K. (2018), "Sosyal Ağlar", (Eds., Erdem Taşdemir and Emre Ş. Aslan), Sosyal Medya İletişimi, Ankara: Gece Kitaplığı.

Korucu, K., S.; Oksay, A.; Kocabaş, D. (2018), "Online Health Concern: Cyberchhondrica", (Eds. Hakan Kapucu, Cüneyt Akar), Changing Organizations From the Psychological & Technological Perspectives, London: IJOPEC Publication Limited.

Köse, H. (2012), Sanal Gezginin "Ego Sörfü: Ekran-Gezerlik, İnternette Gezinmek ya da Yolculuk Üzerine Düşünceler", (Ed.H. Köse), Flanör Düşünce: Arkaik Dönemde ve Dijital Medya Çağında Aylaklık, İstanbul: Ayrıntı Yayınları.

Levitin, Daniel J. (2014), The Organized Mind: Thinking Straight in the Age of Information Overload, Penguin Random House LLC.

Articles:

Adnan, M. and Gezgin, D., M. (2016), "Modern Çağın Yeni Fobisi: Üniversite Öğrencileri Arasında Nomofobi Prelalansı", Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi, Vol.49, N.1, pp.141-158.

Bernhardt, J.M.; Mays, D. and Hall, A.K. (2012), "Social Marketing at the Right Place and Right Time with New Media", Journal of Social Marketing, Vol.2, N.2, pp.130-137.

Ceritli, U. and Bal, P., N. (2017), "Lise Öğrencilerinde Bağlanma Stillerinin Problemli Internet Kullanımına Etkisi", Uluslararası Sosyal Araştırmalar Dergisi, Vol.10, N.50, pp.475-483.

Dilmen, N.E. (2007), "Yeni Medya Kavramı Çerçevesinde İnternet Günlükleri-Bloglar ve Gazeteciliğe Yansımaları", Marmara İletişim Dergisi, N.12, February, pp.113-122.

Erdem, H.; Türen, U. ve Kalkın, G. (2017), "Mobil Telefon Yoksunluğu Korkusu (Nomofobi) Yayılımı: Türkiye'den Üniversite Öğrencileri ve Kamu Çalışanları Örneklemi", Bilişim Teknolojileri Dergisi, Vol.10, N.1, pp.1-12.

Hackley, C.; Hackley, R., A. and Bassiouni, D., H. (2018) "Implications of the Selfie for Marketing Management Practice in the Era of Celebrity", Marketing Intelligence & Planning, Vol.36, N.1, pp.49-62.

Ivanova, E. (2013) "Internet Addiction and Cyberchondria Their Relationship with Well-being" Journal of Education Culture and Society, N.1, pp.57-70.

Kısaç, İ.; Şensoy, E., M. (2017), "Gençlerde Sosyal Medya Algısı ve Kullanma Davranışı", Mediterranean International Conference on Social Sciences, Podgorica, Vol.1, N.1, pp. 379-391.

King, A. L. S.; Valença, A. M.; Silva, A. C. O.; Baczynski, T.; Carvalho, M. R. and Nardi, A. E. (2013), "Nomophobia: Dependency on Virtual Environments or Social Phobia? Computers in Human Behavior", Vol.29, N.1, pp.140–144.

Olcay, S. (2018), "Sosyalleşmenin Dijitalleşmesi Olarak Sosyal Medya ve Resimler Arasında Kaybolma Bozukluğu: Photolurking", Yeni Medya Elektronik Dergi, Vol.2, N.2, pp.90-104.

Öz, H. and Tortop, H.,S. (2018), "Üniversitede Okuyan Genç Yetişkinlerin Mobil Telefon Yoksunluğu Korkusu (Nomofobi) ile Kişilik Tipleri Arasındaki İlişkinin İncelenmesi", Yeni Medya Elektronik Dergisi, Vol.2, N.3, pp.146-159.

Polat, R. (2017), "Dijital Hastalık Olarak Nomofobi, Yeni Medya Elektronik Dergi", Vol.1, N.2, pp.164-172.

Raskin, R. and Terry, H. (1988), "A Principal-Components Analysis of the Narcissistic Personality Inventory and Further Evidence of Its Construct Validity", Journal of Personality and Social Psychology, Vol.54, N.5, pp.890-902.

Syrett, M., Lamminman, J. (2004), "Advertising and millennials", Young Consumers, Vol. 5, N.4, pp.62-73.

Teo, A., R. (2013), "Social Isolation Associated with Depression: A Case Report of Hikikomori", International Journal of Social Psychiatry, Vol.59, N.4, pp.339-341.

White, R.W. and Horvitz, E. (2009), "Cyberchondria: Studies of the Escalation of Medical Concerns in Web search. ACM Transactions on Information Systems", Vol.27, N.4, pp.1-37.

Wong, V. (2012), "Social Withdrawal as Invisible Youth Disengagement: Government Inaction and NGO Responses in Hong Kong", International Journal of Sociology and Social Policy, Vol.32, N.7/8, pp.415-430.

Conference Proceedings

Özsoy, T. (2009), "Fastfood'dan Facebook'a: İnternet Bağımlılığı", Akademik Bilişim'09 - XI. Akademik Bilişim Konferansı Bildirileri 11-13 February, Harran University, Şanlıurfa.

Theses

Amad, S. (2015), Self-Esteem and Aggression: The Relationships between Explicit-Implicit Self-Esteem, Narcissism, and Reactive-Proactive Aggression School of Psychology, (Doctoral Dissertation), Cardiff University, United Kingdom.

Internet Sources

Aras, Y. (2009), "Google'a Soruyorum: Yoksa Ben Bir Infomanyak Mıyım?" https://www.sabah.com.tr/pazar/hobi/2009/11/15/googlea_soruyorum_yoksa_ben_bir_infoma nyak_miyim, (12.10.2018).

Betty Chan-Bauza, (2011), "Google Yourself: Ego-Surfing Can Help Protect Your Identity", https://cyberscout.com/en-us/blog/google-yourself-ego-surfing-can-help-protect-your-identity, (10.07.2020).

Cambridge Dictionary, (2018), "Stalking",

 https://dictionary.cambridge.org/tr/s%C3%B6zl%C3%BCk/ingilizce/stalking, (10.10.2018).

Duygulu, S. (2017), "Teknoloji Bağımlılıkları Hayatımıza E-Hastalıklar Olarak Girdi", http://www.hurriyetaile.com/yazarlar/serap-duygulu/internet-ve-sosyal-medya-hastaliklari-e-hastaliklar_6481.html, (22.11.2018).

Dziesinski, M., J. (2003), "Hikikomori: Investigations into the Phenomenon of Acute Social Withdrawal in Contemporary Japan", http://towakudai.blogs.com/Hikikomori.Research.Survey.pdf, (11.10.2018).

Fisher, R. (2006), "Just cant Get Enough, Newscientist", https://www.newscientist.com/article/mg19225831-200-just-cant-get-e-nough/#bx258312B6, (22.11.2018)

Hurriyet Gazetesi, (2007), "Bunlar da İnternet Hastalıkları", http://www.hurriyet.com.tr/gundem/bunlar-da-internet-hastaliklari-5747055, (18.10.2018).

Işıkdere, A. (2016), "Sosyal Medya Hastalıkları", http://bilimdili.com/doga-cevre/tip/sosyal-medya-hastaliklari/, (14.09.2018).

Sabah Gazetesi, (2018), "En İlginç Sosyal Medya Hastalıkları" https://www.sabah.com.tr/galeri/aktuel/ilginc-sosyal-medya-hastaliklari/2, (01.12.2018).

Securenvoy a Shearwater Group PLC Company (2012), "66% of the Population Suffer from Nomophobia the Fear of Being Without Their Phone" https://www.securenvoy.com/en-gb/blog/66-population-suffer-nomophobia-fear-being-without-their-phone, (18.11.2018).

Sivri, E. (2015), Sosyal Medya Hastalığının Yeni Adı: FOMO, https://www.webtekno.com/internet/sosyal-medya-hastaliginin-yeni-adi-fomo-h7102.html, (15.11.2018).

Turgut, Ö., P., (2010), "İnternet Reklâmlarında Tasarım Sorunları: Banner Reklamlar Üzerine Bir İnceleme", http://inet-tr.org.tr/inetconf10/bildiri/12.doc, (12.02.2018).

Yavuz, M. (2014), "Siberhondrik Nedir, Nasıl Bir Hastalıktır?" https://hthayat.haberturk.com/saglik/haber/1022931-siberhondrik-nedir-nasil-bir-hastaliktir, (12.10.2018).

___ ___ Fare Klavye Hastalığına İlişkin Yanlış Kullanım. www.tr.nature-via.com, (10.07.2020).

___ ___ Ego Sörfüne Mizahi bir Bakış www.career-intelligence.com, (10.07.2020).

___ ___Google Sağlıkla İlgili Aramaları Güvene Alıyor, www.hurriyet.com.tr, (08.07.2020).

___ ___ Photolurking, www.emoji.com.tr, (08.07.20220).

___ ___ Cheesepodding Twitter.com.tr, (05.07.2020).

STEM Learning with Chat-GPT (Gen-AIbot)

Hasan GÜLERYÜZ[1]

Introduction

Nowadays, we are moving in a direction where students take responsibility for their learning and need different skills. For education systems, an understanding of education in which the teacher was at the center and the student was passive was sufficient to meet the needs of societies until the knowledge economy. From the age when it was a virtue to keep information in hand, we have come to an age where it is important to choose correct and valuable information in today's intense information flow. From here, we are moving towards an age where sharing knowledge and experiences is valuable (Slavinec, et.al, 2019). In fact, having knowledge and experience is no longer the power it used to be (Bukhari, Bashir and Malik, 2018). How to skillfully share information and experiences through social media, the internet and similar tools has become a much more important skill (Elmas and Geban, 2012; Uyanık, Aktulun and Elmas, 2019). Human life is changing much faster than anticipated. One of the important elements in this change has been companies and societies. Concepts such as Industry 4.0 or Society 5.0 have heralded the need to be ready for serious innovations in both business life and social life (Fukuyama, 2018; Hermann, Pentek and Otto, 2015). Although there are different reasons behind the introduction of both concepts, they focus on the fact that production can be done flexibly at much cheaper costs through systems designed with robots and artificial intelligence (Fırat and Fırat, 2017). From this point on, there are great differences in the knowledge, skills and abilities expected from technicians and engineers working in new generation factories that operate on a workerless production model. In the education system, it is very important to target skills and concepts that will increase in importance in the future, such as creative thinking, innovation, design, entrepreneurship, being able to ask the right questions, being an effective part of teamwork, taking responsibility in learning, being able to analyze correctly, scientific literacy, technological literacy (Aranda, Lie and Guzey, 2020). This research appears to examine the effectiveness of Gen-AIbots in enhancing STEM learning. Chat-GPT enables students to explore STEM, understand it, create new insights, and solve problems in STEM learning by establishing reflective dialogues. One of our primary goals in the study is to investigate whether Chat-GPT can effectively serve as objects to think about, significantly increasing students' problem-solving skills, participation, knowledge acquisition, problem-solving abilities and reflective thinking against the problems encountered in STEM learning (Rodrigues and Dos Santos, 2023).

Chat-GPT

Chat-GPT; An artificial intelligence-based chatbot developed by OpenAI. The robot can answer the questions you ask as if you were a human. In addition, Chat-GPT can understand what language you write in, create descriptive texts for you, write programs in different programming languages and even debug errors. Chat-GPT compiles the information it learns over the internet and provides satisfactory answers. Chat-GPT makes a series of guesses and provides the user with a single answer much faster. Chat-GPT can be used for different purposes. The aim of this study is to solve the problems encountered in STEM learning with

---

[1] Doktor.

Chat-GPT or to look for solutions. Focusing on the development of collaborative and critical thinking skills has increased interest in innovative approaches to improve education. Technology-based tools attract attention, especially in STEM education. AI and NLP advancements have created opportunities to integrate technology into educational environments, especially in STEM (Ade-Ibijola and Okonkwo, 2021). Chatbots appear to emphasize educational advantages such as continuous scalability and usability (Khosrawi-Rad et al. 2022). It suggests that chatbots can revolutionize education through personalization, educator support, and student insight and engagement, especially in STEM education where specialized support is beneficial (Kuhail et al. 2023). In research, productive AI-powered chatbots have recently received significant attention as educational tools in STEM learning, with OpenAI's Chat-GPT emerging as the best example (Baidoo-Anu and Owusu Ansah, 2023). These Gen-AIbots, which can converse persuasively with a user in natural language, have emerged as promising tools to complement traditional pedagogical practices. The most important and popular feature of Chat-GPT is that you do not need any programming language knowledge. The person using Chat-GPT speaks in his native language. The Chat-GPT program responds in its own language or another language of its choice. It appears to be one of the main factors that enabled Chat-GPT to bring hundred million lay users to AI in just two months after launch. Among those who use Chat-GPT, students make up the majority of them. By showcasing user interaction and expressive language generation capabilities, GPT-4 initiates research into using Gen-AIbots as objects for consideration in STEM education. Explored objects promote cognition, understanding and reflection of complex concepts (Milmo, 2023).

Gen-AIbots can be used as objects to think about on many different topics, including cameras, smartphones, photographs, simulation software, game cards, Lego bricks, and school maps. Cognitive tools are known to support thinking objects, problem solving, creativity, and critical thinking. These cognitive issues connect sensory and abstract information between the individual and social worlds (Turkle, 2007). We think with the objects we love, and we love the objects we think with. As modern examples, Gen-AIbots encourage reflection on key themes and attract people to interact with them by making self-reflection enjoyable (Turkle, 2007). Gen-AIbots are metacognitive machines. Because it affects how we think about our own thoughts (Turkle, 1984). It highlights the need to recognize the agency of chatbots in educational research and appears to provide insights to improve practices (Taylor et al. 2022). Chatbots speak of a future world of productively coexisting multi-species intelligence, ranging from classical underdeveloped humans to advanced humans and the many forms of manufactured AI (Swan, 2015). He claims that Gen-AIbots can address classroom challenges such as encouraging transfer, correcting overestimated understanding, and encouraging critical evaluation (Mollick and Mollick 2022). Additionally, students should use Gen-AIbots with caution, otherwise it may make up things differently. In other words, it has the ability to produce references and facts (OpenAI, 2023). Chat-GPT, like almost every artificial intelligence, can be both beneficial and harmful. If we start from the advantages, one of the biggest advantages is ease of use and saving us time. Since it has natural language processing skills, we achieve natural, very realistic communication.

With its pre-trained model, it has great speed in responding and understanding the questions asked. The continuous learning feature shows us that information is constantly developing and renewing, that is, it becomes easier to access new information and new answers.

Chat-GPT can be easily adapted to other platforms. With its data training and data processing feature, it can analyze the questions asked by users and their answer preferences and provide more appropriate and precise answers to users. The disadvantages of Chat-GPT are that although it feels like it while chatting, it does not have a human mindset even though it is a chat robot. Although most of its answers are correct, this creative artificial intelligence can

sometimes give wrong answers to questions it does not understand with its automatic response system while working by learning. The increasing use of Chat-GPT by students is of great concern to many educators, especially universities. As the use of Chat GPT in the field of education has increased in recent times, the rate of plagiarism in homework and thesis writings has also increased in direct proportion. Additionally, Chat-GPT confronts us with the effects of the use of artificial intelligence on human life and balance; The use of this robot shows that many professions can be performed by artificial intelligence. In the future, as robots and artificial intelligence are developed, daily tasks and some professions may no longer require human power.

STEM and STEM Education

Before explaining what STEM is, it is important to understand what the disciplines that make up STEM mean. There are also different definitions for STEM. STEM by some researchers; It is expressed as an interdisciplinary approach resulting from the integration of these fields by removing the boundaries between the fields of science, technology, engineering and mathematics (Akgündüz, 2016). Considered in this context, STEM can be defined as a process that aims at problem solving by centering science and engineering applications and creativity. STEM education by some researchers; It is defined as an educational approach that should be taught by associating knowledge and skills in other fields by focusing on engineering and technology. It is also seen that there is an effort to add new dimensions to STEM. There are many encountered problems or misunderstandings in the STEM field. First of all, it is necessary to understand STEM well. It is an interdisciplinary approach that relates multiple scientific fields and produces solutions to problems. These misconceptions need to be paid attention to in order to get the desired efficiency from STEM education. In the process, the spirit of STEM will be touched by providing individuals with the desired skills. In this context, the aim of STEM is to raise individuals suitable for the conditions of the age (Carlson and Sullivan, 1999).

STEM education, besides problem solving; It also improves skills such as planning, critical thinking and evaluation. STEM education is the continuation of constructivist education and student-centered education. Naturally, STEM education is very important in terms of allowing theoretical knowledge to be transformed into practice, products and new inventions. STEM education enables the development of behaviors such as trial and error, learning by doing, questioning, research and invention, which are among the strategies necessary to increase the quality of the workforce in the world. The rapidly developing IT sector in our age raises the question of what STEM education is. In line with the digital requirements that have become increasingly important lately, students need to receive education in quality environments in order to better adapt to the education system. It is now essential for students to receive effective education in order to feel ready for the education system they are in and to reveal their creativity in the informatics environment. Considering the competition and balance of power between countries in the 21st century, the importance given to education is increasing day by day. Thanks to STEM studies, countries gain leadership and transfer the skills they have developed in this field to future generations. Again, thanks to these studies, the most accurate information is transferred between generations and the permanence and continuity of information is ensured. In order to achieve all these conditions among countries or to become a leading country, the formation that is considered to be the best education system today is STEM education (Güleryüz, 2020).

This will serve to close the gap in production, R and D, innovation, technical infrastructure and process development and qualified labor in the labor market. They are objects to be considered together, meaning any resource or tool that students can use to explore and develop their understanding of a particular concept or field (Papert, 1980). The concept of

objects for thought is a method of exploring ideas by exploring how objects or specific tools will help students in their cognitive development and learning, developing problem-solving skills, reflective and critical thinking, and understanding of concepts (Papert, 1980).

STEM and Chat-GPT

One of the most effective ways to learn is to use artificial intelligence as a teacher. It is about engaging in dialogue and experimenting with artificial intelligence. It means asking him questions, giving him feedback, and pushing him to improve (Mollick, 2023). Moreover, this process of sequential interactions and reflections is part of the use of Gen-AIbots as objects to be thought with. The effectiveness of chatbots in generating educational natural language responses is well known (Sabzalieva and Valentini, 2023; Okonkwo and Ade-Ibijola, 2021). He explains that the process of giving simple language instructions to a language model such as GPT, called prompting, can be challenging for everyday users to create perfect prompts for consistent results (Mishra et al. (2023). Chat-GPT demonstrates potential for STEM learning applications in generating human-like responses (Franciscu, 2023). Gen-AIbots facilitate collaborative learning, encourage learning together, and offer the opportunity to share different ideas from students. They encourage active learning by creating STEM examples and applications. They help develop complex and problematic STEM concepts and problems and produce solutions aims (Dillenbourg, 1999).

The foundation of our research is an approach to learning that emphasizes hands-on, experiential learning. This approach is particularly relevant in STEM fields, where students need to develop practical skills and apply theoretical concepts to real-world challenges and problems. The aim is to solve or minimize the problems encountered in the STEM field with Chat GPT. With Chat-GPT, it is to include STEM concepts as objects to be considered. To create a collaborative, creative and inclusive learning environment that encourages innovation and discovery in STEM learning. By using the Chat-GPT program, our aim is to enable students to comprehend complex problems encountered in STEM learning, interact, gain new insights, reflect their understanding, discover different perspectives and receive instant feedback on the problems encountered. Also, in the research,

- To contribute to the existing literature by investigating whether Chat-GPT improves learning in STEM education.

- Students' extensive interactions with Chat-GPT are seen. To have detailed information about STEM learning experiences with artificial intelligence.

- Application of Chat-GPT as resources that improve understanding of problems, problem-solving skills and understanding concepts is to bring a new perspective to the field by examining it as STEM.

REFERENCES

Akgunduz, D. (2016). A Research about the placement of the top thousand students placed in STEM fields in Turkey between the years 2000 and 2014. *EURASIA Journal of Mathematics, Science and Technology Education*, *12*(5), 1365-1377.

Aktulun, Ö. U., & Elmas, R. (2019). 21. yüzyıl okul öncesi öğretmenleri için sosyal medya araçları: Muhtemel faydalar. *Temel Eğitim*, *1*(4), 6-20.

Aranda, M. L., Lie, R., & Selcen Guzey, S. (2020). Productive thinking in middle school science students' design conversations in a design-based engineering challenge. *International Journal of Technology and Design Education*, *30*, 67-81.

Baidoo-Anu, D., & Owusu Ansah, L. (2023). Education in the Era of Generative Artificial Intelligence (AI): Understanding the Potential Benefits of ChatGPT in Promoting Teaching and Learning. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.4337484

Bukhari, S. A. C., Bashir, A. K., & Malik, K. M. (2018). Semantic Web in the Age of Big Data: A Perspective: Will We Drown in a Data Tsunami or Enter a Knowledge Utopia?. *IEEE Technology Policy and Ethics*, *3*(3), 1-6.

Carlson, L. E., & Sullivan, J. F. (1999). Hands-on engineering: learning by doing in the integrated teaching and learning program. *International Journal of Engineering Education*, *15*(1), 20-31.

Dillenbourg, P. (1999). What do you mean by "collaborative learning"? In P. Dillenbourg (Ed.), *Collaborative-learning: Cognitive and Computational Approaches* (pp. 1–19). Elsevier.

Elmas, R., & Geban, Ö. (2012). Web 2.0 tools for 21st century teachers. *International Online Journal of Educational Sciences*, *4*(1), 243-254.

Franciscu, S. (2023). *ChatGPT: A Natural Language Generation Model for Chatbots*. https://doi.org/10.13140/RG.2.2.24777.83044

Fukuyama, M. (2018). Society 5.0: Aiming for a new human-centered society. *Japan Spotlight*, *27*(5), 47-50.

Hermann, M., Pentek, T., & Otto, B. (2015). Design principles for Industrie 4.0 scenarios: a literature review. *Technische Universität Dortmund, Dortmund*, *45*, 1-15.

Fırat, O. Z., & Fırat, S. Ü. (2017). Trends and robots in the Industry 4.0 journey. *Istanbul University Faculty of Business Administration Journal, 46(2),* 211-223.

Güleryüz, H. (2020). The effects of 3D printing and robotic coding applications on teacher candidates' 21st century learner skills, Stem awareness and Stem teacher self-efficacy. (Doctoral Thesis). Ataturk University Institute of Educational Sciences. Erzurum.

Khosrawi-Rad, B., Rinn, H., Schlimbach, R., Gebbing, Pia, J., Yang, Xingyue, J., Lattemann, C., Markgraf, D., & Robra-Bissantz, S. (2022). Conversational Agents in Education – A Systematic Literature Review. *Proceedings of Thirtieth European Conference on Information Systems (ECIS 2022), Timişoara, Romania.* https://aisel.aisnet.org/ecis2022_rp/18/

Kuhail, M. A., Alturki, N., Alramlawi, S., & Alhejori, K. (2023). Interacting with educational chatbots: A systematic review. In *Education and Information Technologies* (Vol. 28, Issue 1). Springer. https://doi.org/10.1007/s10639-022-11177-3

Milmo, D. (2023, February 2). ChatGPT reaches 100 million users two months after launch. *The-Guardian-Technology*. https://www.theguardian.com/technology/2023/feb/02/chatgpt -100-million-users-open-ai-fastest-growing-app

Mishra, A., Soni, U., Arunkumar, A., Huang, J., Kwon, B. C., & Bryan, C. (2023). PromptAid: Prompt Exploration, Perturbation, Testing and Iteration using Visual Analytics for Large Language Models. *ArXiv*, *2304.01964*. https://doi.org/10.48550/arXiv.2304.01964

Mollick, E. R. (2023). *A guide to prompting AI (for what it is worth): A little bit of magic, but mostly just practice*. One Useful Thing Blog. https://www.oneusefulthing.org/p/a-guide-to-prompting-ai-for-what

Mollick, E. R., & Mollick, L. (2022). New Modes of Learning Enabled by AI Chatbots: Three Methods and Assignments. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.4300783

Okonkwo, C. W., & Ade-Ibijola, A. (2021). Chatbots applications in education: A systematic review. *Computers and Education: Artificial Intelligence*, *2*, 100033. https://doi.org/10.1016/j.caeai.2021.100033

Okonkwo, C. W., & Ade-Ibijola, A. (2021). Chatbots applications in education: A systematic review. *Computers and Education: Artificial Intelligence*, *2*, 100033.

OpenAI. (2023). *GPT-4 Technical Report*. OpenAI. https://cdn.openai.com/papers/gpt-4.pdf

Papert, S. A. (1980). Mindstorms - Children, Computers and Powerful Ideas. Basic Books.

Rodrigues Vasconcelos, M. A., & P dos Santos, R. (2023). Enhancing STEM Learning with ChatGPT and Bing Chat as Objects-to-Think-With: A Case Study. *Enhancing STEM Learning with ChatGPT and Bing Chat as Objects-to-Think-With: A Case Study (May 1, 2023)*.

Sabzalieva, E., & Valentini, A. (2023). *ChatGPT and artificial intelligence in higher education: quick start guide*. Unesco. https://unesdoc.unesco.org/ark:/48223/pf0000385146

Slavinec, M., Aberšek, B., Gacevic, D., & Flogie, A. (2019). Monodisciplinarity in Science versus Transdisciplinarity in STEM Education. *Journal of Baltic Science Education*, *18*(3), 435-449.

Swan, M. (2015, January 21). *We Should Consider the Future World as one of Multi-Species Intelligence*. Response to The Edge Question 2015: What Do You Think About Machines That Think?; Edge.org. http://edge.org/response-detail/26070

Taylor, C. A., Hogarth, H., Hacking, E. B., & Bastos, E. (2022). Posthuman Object Pedagogies: Thinking with Things to Think with Theory for Innovative Educational Research. *Cultural and Pedagogical Inquiry*, *14*(1), 206–221. https://doi.org/10.18733/cpi29662

Turkle, S. (1984). The Second Self: Computers and the Human Spirit. Simon and Schuster.

Social Innovation and STEM

Hasan GÜLERYÜZ[1]

Introduction

Today, innovation resulting from technological developments and innovations directly affects societies and social life. This interaction led to the emergence of the concept of social innovation. Social innovation refers to the design and implementation of new solutions, which is conceptual, process, product or organizational change that ultimately aims to improve the well-being of individuals and communities. Just as the root of a tree is important in the continuity of life, STEM also has a vital meaning in social innovation. Social innovation can get its juices and nutrients from STEM. With the STEM education system, children who will keep up with the times and even lead them are raised (Güleryüz, 2020). Young leaders who can think analytically and produce technological and scientific studies through STEM can produce effective and sustainable solutions to social problems like a tree with strong roots. STEM education is like the root of a strong, effective and solution-oriented generation. Effective solutions for society and nature can therefore be produced effectively by young people who have caught up with the times in science, technology, engineering and mathematics. Social innovation focuses on solving the social problems of the age, in other words, problems in order to ensure the best continuation of life in terms of society and geography. Social innovations are life-saving for a livable world. In order to reach this social consciousness, the need for systematic interdisciplinary education arises. Innovative sustainable solutions to social, cultural and environmental problems are only possible with young people who have gone through an education system that requires a broad perspective. The STEM education system is perfect for social innovation. STEM education is of strategic importance for training social entrepreneurs who realize social innovation. Today, tested models and political practices based on social innovation, which is one of the most important issues for societies to achieve their development and development-oriented goals, are rapidly spreading globally. In this context, studies should be carried out to better understand what social innovation is, how it is shaped, and to develop social innovation mechanisms, strategies or models suitable for the educational structure (Ateş, 2017).

Innovation

The word innovation is a word derived from the Latin innovatus, meaning to renew, to change. Turkish Language Association (TDK) has suggested the word innovation as the equivalent of the word Innovation. The content of the concept of innovation consists of the presentation of the product or service that constitutes the output of the enterprises in a unique or quite different way compared to the existing ones, as a result of various organizational processes (Gökçek, 2007). When evaluated as "a new idea, method or tool", it can be said that innovation has existed since the beginning of human history (Kuczmarski, 2003). New, innovation and innovation are words that seem to have the same meaning and are often used interchangeably in the field of marketing, as in other fields of study. The term, which is based on the Latin word "innovatus" and essentially means "to renew", has been used in England as "innovation" since the 16th century. This shows that the basis of innovation, which is perceived

---

[1] Doktor.

as a new concept because it has come to the fore in recent years, can be traced back much further. Max Webber was the first person to introduce the concept of social innovation as 'social discovery' in the late 19th century (Corso and Pellegrini, 2007).

Innovation is defined as the implementation of a new or significantly improved product or process, a new marketing method, or a new organizational method in business practices, workplace organization, or external relations. The success of companies in producing, using and sharing information is a prerequisite for innovation. Innovation first begins with the creative phase, and after development, it is implemented through the commercialization phase and reaches the consumer. Innovation is the management of idea development, production of new (or improved) products or production methods or equipment, and marketing activities (Hobikoğlu, 2009).

Innovation is making improvements in processes by producing something new; introducing something new; a new idea, method or tool; It is also defined as the successful implementation of new ideas. In economic terms, change must necessarily create an increase in values. According to Kanter, innovation is the introduction of a new problem-solving idea. Practices such as reorganization, reducing costs, creating new budgeting systems, improving communication, and bringing products together within teams are all innovations. Innovation; It is the birth, acceptance and execution of new ideas, processes, products and services (Acaray, 2007). According to Thompson, innovation; "the discovery, development or implementation of new ideas, processes, products or services". In addition, Zaltman, innovation; It defines it as "an idea, practice or work that is perceived as new by the relevant unit". A definition of innovation accepted by some academics defines innovation as "finding, developing and adapting new ideas". According to Spence, "innovation can be something that has never existed before. "It may be something quite new for our own personal situation, or it may be a new use of something we are aware of for another purpose." According to this definition, innovation; invention (creation of something completely new); It may include one or all of the concepts such as Development (improving something that has been developed), Adaptation (adopting an innovation developed elsewhere). Innovation is the result of the creativity process, which is sometimes expressed as the process of creating imaginary, unproven and untested new ideas, and sometimes, through comparison, from competitors or other sector organizations, customers, intermediaries, commercial laboratories, etc. It refers to the commercialization and/or application of the ideas obtained. Differently, Buckler defines innovation as; It is defined as "the activity of creating value in the organizational culture so that the business can keep up with the changes occurring in the environment" (Özkan, 2009).

Creating innovation can be a new idea, a new theory or hypothesis, a new type of writing, an oil painting, an invention, or a new management style. Innovation; product innovation, process innovation, brand innovation, packaging innovation, etc. it could be. Regardless of the type of innovation, the important thing is to be able to transform the opportunities provided by the changing environment to one's own advantage (Ataoğlu, 2009).

The Importance of Innovation

The rapidly developing and changing technology of the world's economic borders has brought dynamism in competition for businesses. It has been understood that innovation is a factor that determines competitiveness as well as income increase. Businesses must innovate to survive. Businesses must innovate to survive and maintain or increase their competitiveness. For this purpose, it is necessary to minimize costs, diversify by developing new products and services, and increase product and service quality. These requirements are the elements that create innovation ideas. Innovation is the key to economic growth, employment and increased welfare (Terzioğlu, 2008).

Innovation is the key to economic growth, increased employment and quality of life. Any company operating in all sectors needs innovation in all business areas. The products created as a result of innovation efforts enable people's needs to be met more effectively. For example, innovations in the field of medicine can enable people to benefit from health services better, and innovations in the automotive sector can enable transportation to be easier (Gökçek, 2007). Innovation is a recipe that can be used in every field, both for businesses and the country's economy. It is of great importance in the new world economy and it is necessary to do it. Otherwise, it would not be surprising if it resulted in a decrease in profitability and then the bankruptcy of the company.

Social Innovation

It means increasing individual and social welfare by bringing innovative solutions to social problems. In short, the focus is on the question of how better and more effective solutions can be provided to social problems. Thanks to social innovation, which emerges from the combination of entrepreneurship and innovation in the social dimension, both social and economic benefits are created. Effective solutions to problems contribute to the development of the processes necessary for a fair and sustainable future. Effective, sustainable and fair solutions developed to meet social needs or find solutions to social problems are called social innovation. These social needs or problems; It covers areas such as working conditions, education or health. Social innovation is an umbrella concept that emphasizes innovative services and processes in the social field (Popescu, Gheorghe, 2015). Social innovation refers to new ideas, activities and services that are activated with the aim of meeting social needs and put into practice through institutions whose main purpose is to solve social problems. The most important feature of social innovation is that the value created by producing a solution is for the society in general. In this regard, an approach based on long-term social interest is adopted. In other words, the main goal is to provide common benefit for everyone. It should not be forgotten that social issues have a multi-layered structure that affects many actors. Therefore, for social innovation to be successful, all social actors such as private, public and civil society must meet on a common ground. Representing different perspectives ensures that innovative solutions to problems create value for the entire society in the long term (Mulgan et al., 2007).

The importance of social innovation is; It supports social development by providing social benefits. Creating value for societies through innovative solutions has socio-economic benefits. Maximizing these benefits reveals the relationship between innovative solutions to social problems and sustainable development. Social innovation, which supports sustainable development, offers sustainable, effective and efficient solutions to social problems. Social innovation is the result of collective creativity with wider participation. However, material and technological innovations are designed by a specific group of experts, teams, writers and individuals. In addition, because the financial aspect of material and technological innovations is stronger and the returns are faster, their social effects are direct or more specific. The social effects of social innovations may be a little later or affect the next generation (Makarov et al., 2017).

Social Innovation Principles

The social innovation process is carried out in line with certain principles, including the planning and implementation stages. In this regard, the principles to be applied are stated.

Giving opportunities to innovations and entrepreneurs; Embracing change and evaluating possible opportunities both increases efficiency and ensures successful management of risks.

Ensuring broad participation; A collaboration that includes the entire society is important to produce the most effective solutions to social problems.

Building strong partnerships; Collaboration in an initiative where participation is inclusive facilitates all kinds of development and improvement efforts.

Measuring performance in the social field; In order for social innovation to add value to the general society in the long term, performance measurements must be made fully and completely within the scope of goals in the social field (Ludvig et al. 2020).

STEM

STEM; It is a learning, application and development approach that brings together and blends four disciplines: Science, Technology, Engineering and Mathematics. STEM is a teaching philosophy that offers real-world teaching methods to solve problems by bringing together and synthesizing these four important disciplines and integrating these practices into the interdisciplinary program (Güleryüz, 2020).

STEM is an innovative learning approach that combines Science, Technology, Engineering and Mathematics to create an interdisciplinary program that encourages students to think critically and solve real-world problems. Combining these four disciplines, STEM offers students the opportunity to develop their skills in a way that is both engaging and applicable to the modern world. Through this approach, students can gain a deeper understanding of the world around them and develop the skills necessary to succeed in their future endeavors. In the 21st century, technology has become a ubiquitous presence in our daily lives. This inclusiveness also manifests itself in STEM education. So we can say that STEM and technology are closely related. STEM education can help develop technological skills. This training can improve students' problem-solving skills, analytical thinking and skills in using technological tools, encouraging them to be more interested in technological skills and use these skills more effectively. Additionally, STEM education can improve students' ability to make more informed and organized decisions about future technological advances. While the primary focus is on engineering, mathematics, and related sciences, many STEM programs include courses that focus on programming, coding, and other technology-based skills. This is important as it shows the connection between STEM and technology (Güleryüz and Dilber; 2021).

Social Innovation and STEM

It can be said that STEM and the skills that STEM education aims to provide to individuals in the education system are among the 21st century skills. It groups 21st century skills under four categories. In the category of ways of thinking; creativity and innovation, critical thinking, problem solving, decision making; included learning to learn/metacognition skills. Today, creativity is considered one of the vital skills that should be developed by education systems, as it is a driving force that enables the development of civilization (Philpott, 2012). Developments in technology also bring about changes in societies and institutions. The age we live in is shaped by information and technology. We aim to prepare our students to be 21st century professionals who can use technology and informatics effectively, plan production activities, think analytically and bring creative solutions to problem situations. It aims to train people who have mastered their skills (Aish, 2014). It implements a program that aims to help students gain creative and production-oriented working principles as well as their mental development through STEM and social innovation. It is desired to make learning permanent through studies that support students' curiosity and imagination. The basic logic of the STEM approach is that the student uses his/her achievements in a discipline in collaboration with other disciplines to produce solutions to a problem in daily life. STEM education provides children with production-oriented working habits by using and supporting their "imagination and creativity".

STEM provides students with the habit of producing solutions to a problem in daily life and working in a production-oriented manner by using their achievements in a discipline in cooperation with other disciplines. Individuals equipped with 21st Century skills are needed to meet the needs of the digital age we live in. It reveals the need to benefit from these skills in order to develop as a country and to lead in the 21st century. When we look at the professions of the 21st century, it is predicted that 60% of the professions known today will lose their importance and new professions that are unknown today will emerge. These professions belong to the fields of STEM [Science, Technology, Engineering and Mathematics]. We can describe the most important of these as STEM education. STEM education is a teaching system that includes an interdisciplinary and application-oriented approach and aims to integrate four important disciplines such as science, technology, engineering and mathematics. It is possible to say that STEM professions will have the potential to grow much faster than other known professions in the 21st century. Individuals trained in these fields are expected to be able to produce practical solutions, respond to the needs of application and innovation, follow technological developments, and have an innovative and questioning perspective. Individuals with these skills can take part in the professions of the future (Akgündüz, et. al, 2015).

As a result, in recent years, the concept of social innovation and studies in the field of STEM have become increasingly important. It seems that researchers working on this subject are making great efforts to come up with innovative and creative ideas that will benefit society. By eliminating the qualitative and quantitative deficiencies of the education system, the training of individuals will not be negatively affected and the country's global competition will not decrease.

REFERENCES

Acaray, A. (2007). Innovation Management in Small and Medium-Sized Enterprises: A Research on Organizational Structure and Factors Effective in Innovation Management. Unpublished Master's Thesis. Kocaeli University Institute of Social Sciences.

Aish, D. (2014). Teachers' beliefs about creativity in the elementary classroom (Doctoral dissertation, Pepperdine University).

Akgündüz, D., Aydeniz, M., Çakmakçı, G., Çavaş, B., Çorlu, M. S., Öner, T., & Özdemir, S. (2015). STEM eğitimi Türkiye raporu. İstanbul: Scala Basım.

Ataoglu, B. (2009). Local dynamics of innovation, evaluation of the pharmaceutical sector in the Istanbul metropolitan area (Doctoral dissertation, Institute of Science and Technology).

Ateş, M. (2017). Social innovation and Turkey: Potential, dynamics and the role of the state in supporting social innovative studies (Doctoral dissertation, Ankara Yıldırım Beyazıt University Social Sciences Institute).

Corso, M. ve Pellegrini, L. (2007). Continuous and discontinuous innovation: Overcoming the innovator dilemma. Creativity and Innovation Management, 16(4), 333-347. https://doi.org/10.1111/j.14678691.2007.00459.x

Gökcek, O. (2007). Innovation Management Process and Innovation Strategies: AutomotiveA Field Study in the Sector, Istanbul University Institute of Social Sciences, Unpublished Master's Thesis.

Güleryüz, H., & Dilber, R. (2021). Stem activities with robotic coding; the effect on awareness of teacher candidates regarding its use in science lessons. Management Research, 8(11), 37-54.

Güleryüz, H. (2020). The effects of 3D printing and robotic coding applications on teacher candidates' 21st century learner skills, Stem awareness and Stem teacher self-efficacy. (Doctoral Thesis). Ataturk University Institute of Educational Sciences. Erzurum.

Hobikoğlu, E. H. (2009). The impact of the added value created by innovation and sustainable competition in the new economy on the information society. Istanbul University, Institute of Social Sciences, Unpublished Doctoral Thesis, Istanbul, 166-418.

Ludvig, A., Rogelja, T., Asamer-Handler, M., Weiss, G., Wilding, M., & Zivojinovic, I. (2020). Governance of social innovation in forestry. Sustainability, 12(3), 1065.

Makarov, V., Y. Shimanovskaya, T. Tyapkina, M. Firsov, V. Sizikova, T. Rostovskaya, S. Kozlovskaya (2017), "Innovative Models of Social Activity and Their Adaptation to Social Work", Espacios, 38(43), 30-41.

Mulgan, G., S. Tucker, R. Ali, B. Sanders (2007), Social Innovation: What it is, why it Matters and how it can be Accelerated, London: Basingstoke Press.

Kuczmarski, T. D. (1996). "Innovation: Leadership Strategies For The Competitive Edge". American Marketing Association.

Özkan, H. H. (2009). The need for innovation in vocational technical education. In The First International Congress of Educational Research. Paper presented at the "Trends and Issues of Educational Research" congress, Onsekiz Mart University, Çanakkale.

Philpott, R. (2012). Crafting innovation: The intersection of craft and technology in the production of contemporary textiles. Craft Research, 3(1), 53-74.

Popescu, G. H. ve Gheorghe, H. (2015). "The Dynamics of Social Innovation Networks", Psychosociological Issues in Human Resource Management, 3(2), 77-82.

Terzioğlu, M. (2008). Innovation ability in businesses: Denizli textile industry example (Master's thesis, Institute of Social Sciences).

"Postcards As A Propaganda Tool In The Ottoman Empire And Eastern Europe During World War I: An Archival Assessment"

Mehmet Fahri FURAT∗

Preface

The utilization of illustrated postcards for propaganda purposes was noticed quite early in the development of the postcard boom. The depictions of heads of state, military parades and maneuvers, ships, and prominent generals and admirals found in archives and private collections were underscored by a call to patriotism, which was a significant driving force behind the production of postcards across all nations. World War I gave a tremendous boost to propaganda postcards. One of the clear reasons for this was postal censorship, which made it more practical for soldiers at the front to send postcards instead of letters, and for their families to send postcards to them. Additionally, since soldiers were exempt from postage fees, there was a significant incentive for them to purchase and send postcards during their leave periods. Archival records indicate that the end of World War I also marked the end of the illustrated postcard craze. With the war's conclusion, the production of war-related postcards ceased across all countries. However, it was only in the Soviet Union, Italy, and Germany that postcards continued to be extensively used for political propaganda.

Deltiology, the official term for postcard collecting, is believed to be one of the three largest collection hobbies in the world, alongside coin and stamp collecting. Postcards are popular because of their wide range of subjects; virtually every imaginable topic has been depicted on a postcard at some time. History itself, historic buildings, famous people, art, holidays, streets, etc., can be traced through postcards.

Until the mid-19th century, people sent their messages to each other through sealed letters. The idea of the postcard emerged in Germany in 1865. Postcards were first proposed by a German postal official named Heinrich von Stephan in the same year. Later, on October 1, 1869, the Austrian government issued the first postcard (Kostyaşov, 2016). Many people thought it was inappropriate to send messages on cards that everyone, especially servants, could read. However, postcards quickly became popular with the public as they could be mailed at a much lower rate than regular letters.

In the 1880s, privately produced picture postcards had become quite widespread in Germany, but they had not yet reached a mass market. The appeal of picture postcards spread with their use for international exhibitions, a hallmark of the nineteenth century. A card featuring the Eiffel Tower was sold at the Paris exhibition in 1889, and picture cards were produced for the World Columbian Exposition in Chicago in 1893 and the International Exhibition in Antwerp in 1894. The first British picture postcard was printed in 1891 for the Royal Navy Exhibition, but the British Postal Authority fought a long battle to prevent its monopoly in the postcard market from being violated by private publishers (Stefano, 1976). Finally, in 1899, following a protest campaign led by the publishers Raphael Tuck & Sons, who had amassed a large stock of picture postcards in anticipation of success, the monopoly was relaxed. By this time, the picture postcard craze had firmly taken hold across the continent.[1]

∗ Istanbul University, Department of Information and Documentation Managment, Assistant Professor Dr.
[1] In 1902, the German Imperial Post Office conducted a tally of postcards sold within a week and determined that 10,128,569 picture

Adding a picture to a postcard lent such great appeal to postcards that even though they continued to be used for the same practical reasons, the number of postcards in circulation increased tremendously. This sudden visual appeal allowed the postcard to reach a much broader audience. Examining the quality of messages, the type of writing, and the spelling errors on picture postcards that have survived to this day, it becomes clear that the main users of these types of cards were people from the lower middle class and working class. The picture postcard was probably the primary means of communication for the new urban proletariat between 1900 and 1914. Its small size meant that it did not require a great deal of effort, nor did it take much time to write. Its affordability and low postage cost made it accessible to most working people. The speed and frequency of mail deliveries also guaranteed the practicality of the postcard.

Deltiologists refer to the first twenty years of the twentieth century as the "Golden Age" of postcards. World War I erupted at the peak of the postcard craze, significantly shaping the ways in which millions of people worldwide understood that immense war through these "little cardboard squares." Indeed, "postcard fever" notably affected the soldiers of the Great War, whether they were British Tommies, French poilus, American doughboys, German "boches," or Ottoman "Mehmets" (Jacob & Van Ells, 2019). These ordinary cards allowed them to maintain connections with their homes, provided amusement, and even served as symbols of honor. Examining World War I postcards offers an illuminating glimpse into the soldiers' mindset, how they viewed the war, and how people on the home front wanted to understand their own world in relation to the ongoing conflict.

As political scientist Jon D. Carlson has noted, although postcards often presented news events as a form of entertainment, the public frequently followed politics and global issues through postcards. According to Carlson, the eye-catching images and brief texts appealed to "the emerging semi-literate urban population of the middle and lower classes," who were the main consumers of the media. Military conflicts like the Russo-Japanese War of 1904-1905 presented a particularly dizzying mix of dramatic events and impressive visual imagery, capturing the imagination of a population that typically did not follow global events closely. "Like modern infotainment programs," Carlson has written, "postcards also brought foreign policy issues, often as a 'byproduct' of their use, to the attention of an otherwise inattentive public" (Carlson, 2009).

British sociologists Tonie and Valmai Holt have characterized postcards as "Victorian television." This observation is equally valid for the Edwardian era immediately preceding World War I. In the days before social media, email, and even widespread telephone use, postcards served as an ideal form for the transmission of humor, news, and information. They were the tweets and Facebook posts of the early twentieth century.

Germany was indisputably the king of postcard production. The German industry was concentrated in Dresden and Leipzig, dominated by firms like Meisner & Buch and Stengel. In 1906, Germany produced just over a billion picture postcards. The United States was in second place with 770 million, followed by Great Britain with 734 million. In 1913, Germany was again in first place with 1.7 billion, followed by Japan with 1.3 billion and Great Britain with approximately 900 million picture postcard sales. The number of postcards printed and mailed was astonishing. Norwegian historian Bjarne Rogan has written, "Roughly speaking, between 200 and 300 billion postcards were produced and sold during this Golden Age."

In 1903, Kodak significantly influenced the Golden Age of postcards by introducing the Model 3A Folding Pocket Camera, referred to as the first "postcard camera." The films of these types of cameras were directly developed on stiff postcard paper, with the address and message

postcards were sold, equating to approximately one and a half million postcards sold for each day of the week.

sections pre-printed on the back, creating what collectors today know as "real photo" postcards. In many postcard camera models, there was a window for the photographer to etch notes and texts related to the images captured on the negative.

Propaganda and Postcards

While the scale of propaganda's application dramatically increased in the twentieth century, the origin of the word dates back to the Reformation period, a time when Europe's spiritual and religious unity fragmented, and the Medieval Roman Catholic Church lost its dominance in the northern countries. Pope Gregory XIII established a commission of cardinals responsible for spreading Catholicism and regulating religious affairs in pagan lands. In 1622, amidst the outbreak of the Thirty Years' War (1618-1648), Pope Gregory XV made this commission permanent as the Sacra Congregatio de Propaganda Fide (Congregation for the Propagation of the Faith), tasked with managing foreign missions and financed by a "per head tax" collected from each newly appointed cardinal. Within a few years, in 1627, this mission took the form of the Propaganda College (Collegium Urbanum), established to train young priests to undertake such missions. Thus, the first propaganda institute was simply an institution tasked with improving the spread of a group of religious doctrines. The word "propaganda" soon began to be applied to any organization established with the aim of spreading a doctrine.

During England's Puritan Revolution, propaganda conducted through pamphlets and bulletins became a regular complement to military operations; Oliver Cromwell's army was almost as concerned with spreading religious and political doctrines as it was with achieving victory on the battlefield. Throughout the eighteenth and nineteenth centuries, especially during periods of ideological struggle such as the American and French Revolutions, its use steadily increased. Historically, propaganda has been associated with periods of stress and chaos, accompanied by the use of force in intense debates over doctrine (Cull, 2003).

The use of illustrated postcards for propaganda purposes was recognized very early in the development of the postcard boom. The production of postcards depicting the head of state, military parades and maneuvers, ships, prominent generals, and admirals, common in all major countries, was underpinned by a call to patriotism. Germans began producing these types of cards from the mid-1890s; the English published a large number of cards during the South African War; Americans started with these types of cards during the 1898 American-Spanish War; Russians and Japanese also published these types of cards during their wars in 1904-06, and the same types of cards were produced in abundance in France, Italy, and Austria. The production of patriotic postcards peaked during World War I.

Works of leading cartoonists were also reproduced on all kinds of cartoon postcards. The first major wave of these postcards emerged in 1899, during the second trial of Captain Dreyfus, when German postcard publishers produced caricatures with subtitles in various languages to gain an international market for postcards. The Germans naturally took great pleasure in exposing a scandal that damaged the reputation of France; it is estimated that more than 6,000,000 postcards were produced in an 18-month period relating to the Dreyfus affair alone (Fraser, 1980).

In Britain, the Conservative Party published sets of postcards, mostly consisting of anti-Liberal cartoons, and according to their records, used 2,844,590 postcards in the general election campaign in January 1910. The women's suffrage movement also found its place on postcards, with various women's suffrage movements publishing many postcards, unfortunately of uninspiring quality. Commercial postcard companies published many anti-suffrage postcards, a much livelier genre, usually containing quite negative caricatures. Political caricature postcards, especially, have been associated with France in the first decade of this century.

World War I gave a significant boost to propaganda postcards. One clear reason for this was the postal censorship, which made it more practical for soldiers at the front to send postcards instead of letters, and for their relatives to send them postcards as well. Additionally, as postal fees for soldiers were free, there was a significant incentive for them to buy and send postcards during leave periods. Thus, the gathering of millions of soldiers, away from their homes for long periods, at the front or behind the lines, created an almost captive market for the first time.

During World War I, cartoons on books, newspapers, magazines, posters, and postcards were extensively used as propaganda tools by both the Allied and the Central Powers. In World War I, cartoons transformed into propaganda weapons for mocking enemy countries. During this period, along with propaganda, cartoons also started experiencing their golden age.

In a time when visual communication tools were not developed, postcards became an indispensable communication tool for people during World War I. Particularly in terms of spreading images, postcards were quite successful. A significant portion of the millions of postcards produced between 1914-1918 contained political messages for propaganda purposes. These political messages were created with cartoons placed on the postcards.

In World War I, the images used for propaganda purposes aimed to fuel hatred against the enemy country and increase friendship towards allied countries. The images on postcards were used by the ruling powers sometimes to consolidate their political legitimacy, and sometimes to create an agenda in propaganda activities. Unlike other mass communication tools, when the artist's perspective and artistic diversity were reflected in the images on postcards, the impact of propaganda could increase. The artist can make what is on the postcard appear larger and more impactful, or smaller and more modest. On the other hand, during wartime, some photographic frames that could not be taken during the war could be painted by artists on postcards, providing information to the masses about the war.

War-time propaganda campaigns were conducted with covert central control. Each country had its own propaganda department, but the main propaganda was produced by well-established publishers, thus maintaining an appearance of independence from central control. World War I ended German dominance in the international illustrated postcard market, but at the beginning of the war, German postcard publishers tried to maintain their connections in France by supplying postcards celebrating the successes of French troops. For postcard publishers, emphasizing that their postcards were not printed in Germany became a patriotic duty, and therefore phrases like 'British Made' or 'Fabrication Française' were printed on the postcards (Fraser, 1980).

The end of World War I also brought an end to the postcard craze. Postal fees increased almost everywhere, customs duties were imposed in some countries, and retailers increased their charges to maintain the high profit margins they had reached during the war. These economic blows could deter many postcard buyers, but at the same time, serious collectors also saw that they were no longer being catered to. Postcard manufacturers had stopped producing limited edition special cards and had shifted their focus to subjects that appealed to a broader audience. With the end of the war in all countries, the production of war cards also ceased. Postcards continued to be used for large-scale political propaganda in only three countries: the Soviet Union, Fascist Italy, and Germany. In Germany, the postcard habit never ended and continued to be used for propaganda purposes throughout the 1920s.

The Ottoman Empire and Postcards

The first years when postcards appeared in the Ottoman Empire coincided with the reign of Abdülhamid II, during which the administration applied strict censorship and scrutiny over

all kinds of press, publication, and communication organs. In these years, the widespread use of postcards in the Ottoman geography was not allowed, as it was in Europe. However, many Ottoman intellectuals were learning about developments in Europe through Turks located there. A letter sent to Ebuzziya Tevfik Bey, one of the famous journalists of the period, from Paris highlighted the point reached in postcard usage in Europe with these words: "Here I am sending you a series of the latest postcards made in Paris. I hope you like them and they catch your attention. You will see that the pictures are not photographs, they are clearly from an artist's painting transferred to photography, they have a certain deceptive value. We absolutely need and desire you to print this kind of cards as well... You know how much the number of postcard collectors is increasing in almost all parts of Europe. Who wouldn't say that a few years from now postcard collections will be more valuable than stamp collections..." (Polat, 2012)

In contrast to the excitement of the Ottomans in Europe about postcards, stern measures were sometimes taken about these postcards at the center of the Empire. An imperial decree was published on this matter, and at various times, postcards contrary to this decree were collected.

During the war years, various forms of postcards were printed within the group comprising the British-French and Russian alliance, and in contrast, the alliance of Germany, Austria-Hungary, and the Ottoman Empire. While countries used themes emphasizing their alliances on postcards, it was also extremely common for each of them to have postcards that separately appealed to the national sentiments of their own countries. In a study prepared on this subject, which includes a wide variety of postcard examples from the war years, postcards have been categorized under the following headings:

Postcards related to warring nations and individuals,

Propaganda postcards that incite nationalism and hatred against the enemy,

Postcards consisting of real images depicting people, machines, naval wars, and aerial wars,

Postcards carrying humor and sentimentality,

Postcards depicting those left behind (at home) and postcards narrating the efforts of women in war,

Postcards featuring beautiful women, postcards based on soldiers' heroic scenes, and embroidered postcards,

Postcards dealing with the end of the war and the return of the troops (Polat, 2012).

Despite this widespread use in Europe during the war years, the use of postcards in the Ottoman Empire was seen to be limited. However, it had been decided at the beginning of the war to print postcards of paintings depicting national heroisms (mefâhir-i milliye).

The Germans generally depicted their ally, the Turks, as children and female soldiers in the caricatures on propaganda postcards. By consistently featuring small children and women, it can be seen that there was an attempt to somewhat reduce the harsh and merciless face of the war on postcards.

On the other hand, the inclusion of women and children in cartoons facilitated the delivery of hidden messages in the connotative sense. The use of caricatures of women and children representing Turkish society opened the way for the use of exaggeration and humor. Additionally, by featuring the daily life of the Turkish peasants in cartoons, it is observed that there was an attempt to create propagandistic messages through the natural habitats of the Turks.

World War I, Russia, and Postcards

In Russia, illustrated postcards began to be printed in 1895 and quickly became a part of the country's cultural life. City and nature landscapes were shown on postcards, important events occurring in the state and society were displayed, stories from the lives of ordinary people and portraits of famous individuals were printed. Artwork by famous masters and book illustrations for fairy tales, etc. were reproduced.

While the German publishing industry had already developed postcards as an indispensable element of middle-class life in the 1880s, Russians quickly caught up with this development. The Russian government had joined the Universal Postal Union in 1872. Privately printed cards became legal around 1894, years after their popularity in Germany but almost simultaneously with the permission of private cards in England. Swedish, German, and French companies continued to market postcards in Tsarist territories, but Russian chromolithographic capabilities reached a very high quality by the end of the century on their own. Russian postcard art did not emerge from a vacuum; instead, it was built upon a colorful folk tradition called "lubok," combining text with creative woodcut images. Lubok continued to exist until the period when publishers started releasing new postcards printed using lithography (Stevens, 1995).

During World War I, postcards became a basic tool of mass communication and persuasion, as well as a means of private and official fundraising in pre-radio Europe and Russia (Danielson, 2016). There were practical reasons for the proliferation of such cards during wartime. Millions of young men sent to the battlefield relied on postcards to assure their relatives that they were still alive. The advantages of postcards over traditional letters were immediately apparent to everyone: speed and convenience. Cards without envelopes passed quickly through military censorship. The small space allocated for the message on the text side of the card relieved the pressure on tired soldiers, some of whom were semi-literate, to write something lengthy.

Another function of the postcard was to facilitate socio-political changes in Russia's public life in the early twentieth century and transform it into an information platform through incitement and propaganda. "A convenient format, wide print, and mass distribution capabilities made the postcard an indispensable tool of propaganda and a source of news information."

There were three main streams of the patriotic narrative as reflected in illustrated postcards. The first encouraged Russians to buy war bonds, desperately needed to provide funds for the increasingly cash-strapped government. War bonds posters were reproduced in the form of illustrated postcards for mass distribution. The postcards, which were very brightly colored, usually evoked some form of the word "patriotic" and often linked bond purchases to the successful continuation of the war by incorporating things like artillery shells into the image. Other postcards in the same series appealed to patriotism by using historical figures in an allegorical manner. A second stream benefited from Russia's political satire history by presenting caricatures of the country's enemies, especially the Kaiser, or by exploiting established ethnic stereotypes of Germans, Austrians, and Turks. Finally, a third stream united the home front behind the war efforts (Rowley, 2021).

In the early period of World War I, the Russian propaganda postcard became an effective new tool in the arsenal of agitators and propagandists with the first-time use of visual statistics (Image1). The onset of the World War facilitated the inclusion of visual statistics in the state's propaganda policy.

Image 1. "RUSSIA IN NUMBERS", "Wheat yield in bushels per acre".

In August 1914, the notables of the city of Moscow asked an esteemed art professor from the Moscow School of Painting, Sculpture, and Architecture to create a drawing for a fundraising campaign to benefit war casualties. Leonid O. Pasternak, an artist and the father of the poet Boris Pasternak, was known for his quick life sketches. Leonid Pasternak accepted the commission but explained that he was not familiar with military uniforms and requested a soldier to come to his studio.

Image 2. Postcard "For the aid of war victims, 20-21 August, Moscow."

A weary soldier bearing the weight of his experiences leans against a wall, holding a cloth to his bleeding wound. The text on the postcard is written in a flowing handwriting: "For the Aid of War Victims, 20-21 August, Moscow (Image 2)." Red ink has been used to depict the blood flowing from the wound. One version of the postcard uses red ink, while another uses black ink on a cream background. Pasternak's drawing captured the public's attention. The poster was hung all around the city, leading to the sale of hundreds of thousands of cards. Stamps and candy wrappers were also printed. The public responded with patriotism, and the charity made a profit for the wounded. In 1915, the British magazine The Studio published a special edition of the print known as "The Wounded Soldier." The image was reproduced all across Russia; a remarkable achievement for a simple motif without any remarkable features.

However, even this direct and accessible drawing was not without its ideological complications. Reportedly, Tsar Nicholas II was not as pleased with Pasternak's card as the

people of Moscow were. He thought that the image of the weary soldier was a slander against Russian warriors. It would demoralize the troops. Although this was certainly not the artist's intention, Nicholas's stern political reaction had a certain logic to it. In 1918, the Bolsheviks used a pirated version of the image for an anti-imperialist, anti-war poster, without informing the artist. Pasternak had never wanted his work to be used in this way. When Pasternak inquired about the copyright, the new Soviet authorities informed him that it had been nationalized along with all other property. Leonid Pasternak never produced propaganda images again (Danielson, 2016).

Conclusion

During the First World War, the field of propaganda underwent a significant transformation, coming firmly into the hands of professionals. Nations, recognizing the power of propaganda, began to craft systematic strategies in an effort to safeguard their interests, endeavoring to exert control over public opinion both domestically and on the international stage. This period marked the first time in history that such a concerted effort had been made on such a scale. The technological advancements and substantial shifts within the realm of mass communication played a crucial role in enabling these propaganda efforts to penetrate deep into society, reaching vast audiences like never before.

Postcards, despite their pervasive presence and potential as rich sources of historical, political, and social information, have been largely neglected in mainstream academic research, particularly in studies focused on political attitudes, perceptions, and propaganda. Even when they have been employed as tools in the fields of public opinion research and political mobilization, they have seldom been the primary focus of scholarly inquiry. Instead, they have often been dismissed as transient, commercial, and lacking in scholarly value. However, from the perspective of an archivist, the potential of postcards as valuable historical documents and sources of insight is clear and compelling.

Postcards offer a unique window into the social, political, and cultural landscapes of their time, capturing the prevailing attitudes, beliefs, and sentiments of society. As such, they represent an invaluable resource for researchers and scholars looking to delve deeper into the historical narrative, providing a tangible connection to the past and a rich vein of material to be explored.

By adopting an archival lens and treating postcards not just as visual artifacts but as historical documents in their own right, we can unlock a wealth of information and insights, shedding light on the ways in which propaganda was disseminated and consumed, and revealing the intricate interplay between political power, public opinion, and visual culture. This approach not only enhances our understanding of the past but also enriches the field of historical research, opening up new avenues of inquiry and offering fresh perspectives on the role of propaganda in shaping society.

In this regard, the archivist's role is crucial, as it involves not only the preservation of these materials but also their interpretation and contextualization, ensuring that the stories they tell are heard and understood by future generations. In doing so, we ensure that postcards take their rightful place in the historical record, recognized not just as visual curiosities but as valuable artifacts of our cultural heritage, capable of illuminating the past in all its complexity and nuance.

References

Carlson, Jon D. (2009). Postcards and Propaganda: Postcards as Soft News Images of the Russo-Japanese War. Political Communication, 26, 212-237.

Cull, N. J. (2003). Propaganda and mass persuasion: a historical encyclopedia, 1500 to the present. ABCwCLIO.

Danielson, E. S. (2016). Russian and German "Great War" Picture Postcards. Slavic & East European Information Resources, 17 (3), 151-164.

Fraser, J. (1980). Propaganda on the Picture Postcard. Oxford Art Journal, 3 (2), 39-48.

Jacob, Fr. & Van Ells, M. D. (2019). A Postcard View of Hell: One Doughboy's Souvenir Album of the First World War. Vernon Press.

Kostyaşov, Yu.V. (2016). Pervaya mirovaya voyna v Vostoçnoy Prussii na nemetskih poçtovıh otkrıtkah. Honoris causa, SPb: Nestor-İstoriya, 195-206

Polat, Ü. G. (2012). Savaş, propaganda ve kartpostallar. Avrasya İncelemeleri Dergisi (AVÎD), 1 (2), 243-268.

Rowley, A. (2021). Open Letters: Russian Popular Culture and the Picture Postcard, 1880-1922. University of Toronto Press, 135-157

Stefano, F. Jr. (1976). Pictorial Souvenirs and Commemoratives of North America. New York: E.P. Dutton.

Stevens, N. D. (1995). Postcards in the Library: Invaluable Visual Resources. New York: Haworth.

Gamification: A Booster for Language Learning Motivation

Mithat EKİNCİ[1]
Ecem EKİNCİ[2]
Mehmet ŞANVERDİ[3]

Introduction

Learning English as a second language (ESL) or even as a native language can often be a challenging and sometimes monotonous process. However, the advent of technology, particularly in the field of Education, has led to innovative methods designed to make learning more engaging and effective. One such method is gamification, which refers to the use of game design elements and principles in non-game contexts to engage and motivate users. It has emerged as a powerful tool in transforming the landscape of language education, particularly in the realm of English language learning. Gamification aims to make the learning experience more engaging, motivating, and enjoyable for learners, often incorporating elements from video games, such as points, rewards, levels, challenges, and competition. As it is suggested by Ekinci (2023), this approach directly influences language learning motivation, engagement, skill development, and pedagogical practices.

Gamification's Role in Language Learning Motivation

The incorporation of gamification into language learning has revolutionized traditional pedagogical approaches, injecting enthusiasm and interactivity into the process. It plays a significant role in motivating language learners by leveraging game-like elements and principles to make learning more engaging and enjoyable. In the context of English learning, gamification can play a valuable role in several ways as a means of language learning motivation boost. The inclusion of game elements like badges, points, and leaderboards has been shown to enhance learner engagement and motivation (Deterding et al., 2011). As traditional methods of learning English, often laden with repetitive exercises, can become monotonous, gamification breathes life into this routine by making the learning process more interactive and engaging. By introducing challenges, rewards, and a sense of achievement, it taps into learners' innate desire to master a language.

Gamification is touted as a way to boost both intrinsic and extrinsic motivation in learners (Huang & Soman, 2013). This approach possesses various distinctive features to be used to the advantage of language learners. One of the critical features of gamified platforms is the immediate feedback provided to learners. This feature is closely aligned with the tenets of formative assessment, which argues that timely and actionable feedback can enhance learning (Black & Wiliam, 1998). With the help of the cooperative nature of gamification, the learners are able to increase their motivation and engagement in language learning. In addition, gamified

---

[1] Instructor, Osmaniye Korkut Ata University
[2] Instructor, Osmaniye Korkut Ata University
[3] Instructor, Osmaniye Korkut Ata University

systems often feature progress bars or other visual elements allowing learners to track their progress. This can increase a learner's sense of autonomy, contributing to intrinsic motivation (Deci & Ryan, 2000). Also, most of the gamified platforms offer social interaction features, like the ability to work in teams or compare scores. It can create a sense of community by encouraging interaction and collaboration with other learners. It can develop a sense of community by encouraging interaction and collaboration with other learners. These can enhance social motivation, which can be particularly effective in language learning, which is inherently a social activity (Vygotsky, 1978).

The game-like environment in gamification often reduces the fear of making mistakes, making learners more willing to take risks and experiment with the language. As stated by Dewaele and Alfawzan (2018), gamified language learning reduces language learning anxiety and helps students take responsibility for their own learning. As gamification significantly increases learner engagement by introducing elements of fun and challenge into the language learning process, the learners are able to take risks and feel comfortable in the classroom atmosphere.

To illustrate the impact of gamification in language learning, several researchers have conducted various studies. For example, research by Hamari et al. (2014) investigated the effects of gamification on student motivation and learning outcomes. The investigation revealed that gamified learning environments significantly increased intrinsic motivation and engagement. Similarly, the study by Caponetto et al. (2014) emphasized the positive impact of gamification on language learning motivation and performance. In another study, Al-Dosakee and Ozdamli (2021) illustrated that gamification can be a valuable tool for teaching and learning languages, increase learners' motivation, and turn learning into an enjoyable process. In addition, Arce and Valdivia (2020) found in their study that gamification boosts students' engagement in language learning, and they feel more motivated to learn a second language using this methodology.

While gamification has been praised for its potential to motivate and engage learners, it's crucial to consider its limitations. Not all students are inspired by the same gamification elements; some might even find them demotivating. As Kirschner and Karpinski (2010) indicated, gamified elements might encourage learners to engage in "surface learning," focusing on earning points rather than deeply understanding the subject. In addition, leaderboards and other competitive elements might induce stress or anxiety, particularly among those who are not naturally competitive (Hanus & Fox, 2015). For this reason, the use of gamification in language learning classes should be planned professionally, considering its potential drawbacks.

Conclusion

In conclusion, gamification offers a dynamic and innovative approach to enhance English language learning. By integrating game-like elements into educational contexts, educators can tap into learners' intrinsic motivation, making language acquisition an engaging and enjoyable experience. The integration of points, rewards, challenges, and collaboration fosters active participation, while feedback mechanisms and progress tracking ensure learners remain on a path of continuous improvement. As research continues to support the benefits of gamification in language education, it is evident that this approach has the potential to revolutionize the way we teach and learn English.

Moreover, feedback mechanisms and progress tracking contribute to the effectiveness of gamified language learning. Immediate feedback highlights areas for improvement, allowing learners to address their weaknesses while building on their strengths. The visual representation of progress helps learners recognize their accomplishments, reinforcing their commitment to the learning journey.

References

Al-Dosakee, K., & Ozdamli, F. (2021). Gamification in teaching and learning languages: A systematic literature review. *Revista Romaneasca Pentru Educatie Multidimensionala*, *13*(2), 559-577.

Arce, N. H., & Valdivia, A. C. (2020). Adapting competitiveness and gamification to a digital platform for foreign language learning. *International Journal of Emerging Technologies in Learning (iJET)*, *15*(20), 194-209.

Black, P., & Wiliam, D. (1998). Assessment and classroom learning. *Assessment in Education: principles, policy & practice*, *5*(1), 7-74.

Caponetto, I., Earp, J., & Waters, J. (2014). An instructional model for using social media in formal and informal learning. *The International Review of Research in Open and Distributed Learning, 15*(4), 44-71.

Deci, E. L., & Ryan, R. M. (2000). The" what" and" why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*(4), 227-268.

Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011, September). From game design elements to gamefulness: defining" gamification". In *Proceedings of the 15th international academic MindTrek conference: Envisioning future media environments* (pp. 9-15).

Dewaele, J. M., & Alfawzan, M. (2018). Does the effect of enjoyment outweigh that of anxiety in foreign language performance?. *Studies in second language learning and teaching*, *8*(1), 21-45.

Ekinci, E. (2023). A brief identification of reading comprehension strategies. In Z. Karacagil (Ed.), *Current Debates on Social Sciences 13* (pp. 109-113).

Hamari, J., Koivisto, J., & Sarsa, H. (2014, January). Does gamification work? -A literature review of empirical studies on gamification. In *2014 47th Hawaii International Conference on System Sciences* (pp. 3025-3034). Ieee.

Hanus, M. D., & Fox, J. (2015). Assessing the effects of gamifycation in the classroom: A longitudinal study on intrinsic motivation, social comparison, satisfaction, effort, and academic performance. *Computers & Education*, *80*, 152-161.

Huang, W. H. Y., & Soman, D. (2013). Gamification of Education. *Report Series: Behavioural Economics in Action*, *29*(4), 37.

Kirschner, P. A., & Karpinski, A. C. (2010). Facebook® and academic performance. *Computers in human behaveior*, *26*(6), 1237-1245.

Vygotsky, L. S., & Cole, M. (1978). *Mind in society: Development of higher psychological processes*. Harvard University Press.

Multifaceted Benefits of the Flipped Classroom Model in Education

Mithat EKİNCİ[1]
Ecem EKİNCİ[2]
Mehmet ŞANVERDİ[3]

Introduction

The flipped classroom model in education has received noteworthy attention and acclaim in recent years. This innovative teaching method challenges the conventional classroom structure by reversing the sequence of in-class and out-of-class activities. Contrary to the traditional models, where students passively receive information during lectures and work on problems at home, in a flipped classroom, students first encounter the content at home and then use class time to deepen their understanding through exercises, discussions, and other activities (Bergmann & Sams, 2012). In this setup, students encounter new content before class, usually in the form of video lectures or readings, and use the classroom time for interactive exercises and collaborative projects to engage more deeply with the subject matter (Bishop & Verleger, 2013). Adopting an education model like that provides various benefits and advantages for the learners compared to the ones receiving education in traditional classrooms.

Flipped Classroom in Action

The educational landscape has been ever-evolving, and the 'flipped classroom' approach stands out as a significant innovation in teaching methodology. One of the most significant advantages of flipped classrooms is increased student engagement. In traditional settings, students often passively listen to lectures, making it easier for them to become disengaged (Crouch & Mazur, 2001). In contrast, flipped classrooms require active participation, which fosters an environment conducive to better engagement and deeper learning (Bergmann & Sams, 2012). Allowing students to actively participate in their learning and explore materials at their own convenience fosters a sense of ownership over their education, increasing motivation and interest in the subject matter. In addition, in a flipped classroom, students have the freedom to learn at their own pace, which accommodates different learning styles (Strayer, 2012). This self-paced learning can lead to better academic outcomes, as students can revisit lectures and readings as needed, enhancing comprehension and retention (Goodwin & Miller, 2013).

Flipped classrooms also restore interactivity and cooperation between the students. The interactive nature of flipped classrooms encourages students to absorb knowledge and apply, analyze, and synthesize it (Tucker, 2012). As identified by Bloom and Krathwohl (2020), activities, group discussions, and projects are able to create a fertile learning environment for developing higher-order thinking skills. Because teachers are not occupied with delivering lectures during class time, they can spend more time interacting with students individually or in small groups, offering more personalized support (Bergmann & Sams, 2012). Additionally,

---

[1] Instructor, Osmaniye Korkut Ata University
[2] Instructor, Osmaniye Korkut Ata University
[3] Instructor, Osmaniye Korkut Ata University

the interactive nature of flipped classrooms allows for real-time formative assessment. As stated by Hattie and Timperley (2007), teachers can more easily identify areas where students are struggling and adapt their instruction accordingly.

Another critical benefit of flipped classrooms is the easy access to learning materials. Lecture materials like video lectures or podcasts can be accessed anytime, anywhere, allowing learning to happen beyond the boundaries of the classroom (Bishop & Verleger, 2013). This adaptability supports a variety of schedules and learning situations, which may help non-traditional students or those with other obligations. This accessibility can be especially beneficial for students needing additional time with the material or scheduling challenges (Goodwin & Miller, 2013).

In addition, the use of technology in the flipped classroom equips students with essential digital skills, which are increasingly relevant in today's digital age (Tucker, 2012). These skills extend beyond academic settings and are beneficial for future career prospects. The flipped classroom model also promotes stronger teacher-student relationships (Hinojosa et al., 2016). With more individualized attention during in-person sessions, instructors can identify and address students' specific needs, providing valuable guidance and support.

There are some studies that illustrate the positive influence of the flipped classroom method in education. For example, a survey by Abeysekera and Dawson (2015) found that flipped classrooms can significantly enhance student engagement, particularly for students who are usually disengaged in traditional classroom settings. On the other hand, Tucker (2012) reported that the flipped model allows for increased face-to-face time between teachers and students, improving the quality of interactions and enabling more personalized guidance. In addition, Chen, Wang, and Chen (2014) unearthed that flipped classrooms can foster self-directed learning habits in students, encouraging them to take more responsibility for their own education. Last but not least, Basal (2015) conducted a study to gain insights into the perceptions of prospective English language teachers at a state university in Turkey on flipped classrooms. The study's findings showed that implementing flipped classrooms was advantageous in four areas: allowing students to learn at their own pace, preparing advanced students, getting around the constraints of class time, and boosting student participation.

Conclusion

In conclusion, as demonstrated in this study, the flipped classroom model offers an innovative approach to education and shifts the traditional teaching paradigm to create a more student-centered learning environment. The model presents a transformative approach to education that brings many benefits, ranging from personalized learning to increased engagement and improved critical thinking skills. As educators continue to adapt to the evolving needs of their students and the demands of the 21st century, flipped classrooms provide a robust and flexible framework for effective teaching and deep learning. As stated by Ekinci (2023), with the help of flipped classrooms, students gain more control over their learning, allowing for self-paced study that can result in improved comprehension and retention of material. Teachers, in turn, are allowed to spend classroom time addressing individual needs and facilitating active learning, which often leads to better student outcomes. Moreover, the model facilitates continuous assessment and feedback, enabling real-time adjustments to teaching strategies. This form of pedagogy also integrates with digital technology, making it especially relevant for today's tech-savvy generation.

However, the effectiveness of a flipped classroom is dependent on its implementation. Teachers need to be adequately trained to create compelling and informative pre-class material while also mastering the art of facilitation for in-class activities. Equally, students need to adapt to this new learning landscape, taking more responsibility for their own education. Nevertheless, when executed well, flipped classrooms can elevate the educational experience, bridging the gap between passive learning and active engagement to prepare students for the complexities of the modern world.

References

Abeysekera, L., & Dawson, P. (2015). Motivation and cognitive load in the flipped classroom: definition, rationale and a call for research. *Higher education research & development*, *34*(1), 1-14.

Bergmann, J., & Sams, A. (2012). *Flip your classroom: Reach every student in every class every day*. International society for technology in education.

Bishop, J., & Verleger, M. A. (2013). The flipped classroom: A survey of the research. In *2013 ASEE Annual Conference & Exposition* (pp. 23-1200).

Bloom, B. S., & Krathwohl, D. R. (2020). Taxonomy of educational objectives: The classification of educational goals. Book 1, Cognitive domain. Longman.

Chen, Y., Wang, Y., & Chen, N. S. (2014). Is FLIP enough? Or should we use the FLIPPED model instead? *Computers & Education*, *79*, 16-27.

Crouch, C. H., & Mazur, E. (2001). Peer instruction: Ten years of experience and results. *American journal of physics*, *69*(9), 970-977.

Ekinci, E. (2023). A brief identification of reading comprehension strategies. In Z. Karacagil (Ed.), *Current Debates on Social Sciences 13* (pp. 109-113).

Goodwin, B., & Miller, K. (2013). Research says / evidence on flipped classrooms is still coming in. *Educational Leadership, 70*(6), 78–80.

Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of educational research*, *77*(1), 81-112.

Hinojosa, J., Menchaca, M., & Hinojosa, R. (2016). The Flipped Classroom Model: Effects on Teaching and Learning. *Contemporary Issues in Education Research, 9*(3), 187-198.

Mason, G. S., Shuman, T. R., & Cook, K. E. (2013). Comparing the effectiveness of an inverted classroom to a traditional classroom in an upper-division engineering course. *IEEE transactions on education*, *56*(4), 430-435.

Strayer, J. F. (2012). How learning in an inverted classroom influences cooperation, innovation and task orientation. *Learning Environments Research*, *15*, 171-193.

Tucker, B. (2012). The flipped classroom: Online instruction at home frees class time for learning. *Education Next, 12*(1), 82–83.

Does Geopolitical Risk Matter For Trade? The New Evidences for Turkey's Export

Mücahit ÇİTİL[1]
Mehmet Ragıp GÖRGÜN[2]

Introduction

Ensuring economic growth and increasing the welfare level of society is one of the top priorities for all countries in today's world. Especially with the adoption of free trade policies after 1980 and globalization, export-based economic growth models have gained importance in the development of countries. Foreign payments imbalances, especially in developing countries, have negative effects on economic growth. Exchange rate increases as a result of the inability to meet the imports required for production and consumption with export revenues create an inflationary effect on the one hand, and decrease investments due to high interest rates on the other. At this point, it is seen that foreign direct investments have a great contribution to employment, technological know-how and increase in exports in developing countries. However, issues such as geopolitical risks, economic and political stability are of great importance in the country preferences of investors. In countries where geopolitical risks exist, it is thought that both the investment desires of resident entrepreneurs and foreign direct investments are negatively affected.

In a world economy where integration efforts increased after 1980 and have reached very high levels today, international trade is shaped by geopolitical risks. Political conflicts and tensions in a multipolar world economy make it inevitable that geopolitical risks that cannot be ignored will shape international trade. It will be very valuable to produce information about the nature of the relationship between international trade, which is reshaped and takes place on a highly variable basis, and geopolitical risks.
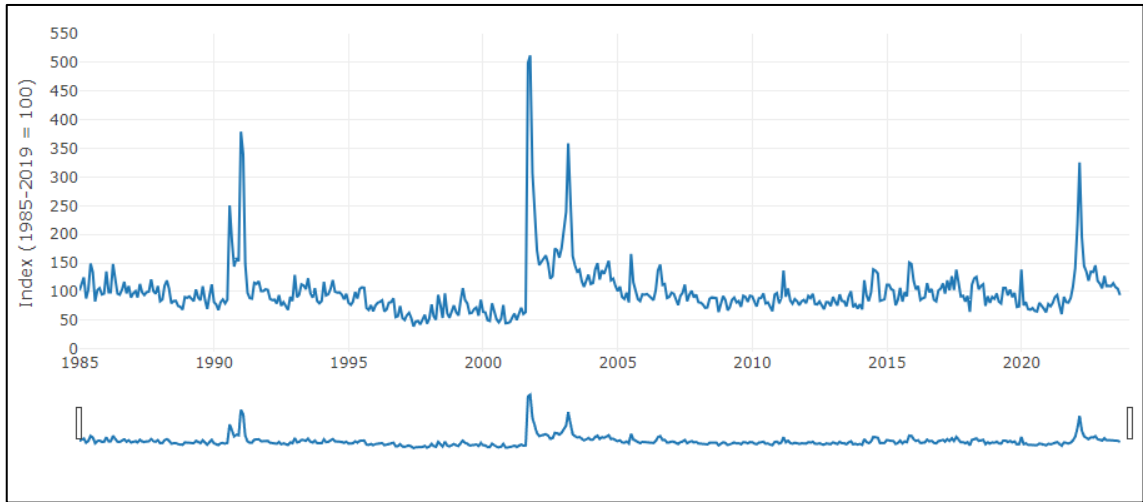
Graph 1 Source: (Caldara & Iacoviello, 2022)

[1] Mücahit Çitil, Dr. Öğretim Üyesi, Harran Üniversitesi, Siverek Uygulamalı Bilimler Fakültesi, Uluslararası Ticaret ve Lojistik Bölümü, mucahitcitil@harran.edu.tr, ORCID: 0000-0002-6788-7115
[2] Mehmet Ragıp GÖRGÜN, Doç. Dr. Harran Üniversitesi, Siverek Uygulamalı Bilimler Fakültesi, Uluslararası Ticaret ve Lojistik Bölümü, mehmetgorgun@harran.edu.tr, ORCID: 0000-0003-1618-3844

For more than a century, international trade was defined in terms of windows of opportunity and mutual prosperity. However, today it seems that international trade is significantly affected by fluctuations in geopolitics and international relations. Border tensions between countries, terrorist incidents that increase international security concerns, trade sanctions and disputes caused by political differences, as well as diplomatic disputes and increasing geopolitical risks leave long-term effects on the flows of goods and services between countries.Thus, international production networks are disrupted, supply chains covering many countries and hundreds of companies are broken, market opportunities narrow and predictability in industries decreases, albeit to different degrees.

This study conducts an analysis by focusing on the question of what kind of relationship there is between geopolitical risks and international trade. However, it aims to conduct this analysis from the perspective of Turkey, which has increased its integration with the world day by day after 1980. Based on macroeconomic data and the geopolitical risk index developed by (Caldara & Iacoviello, 2022), we examine the impact of geopolitical risks on international trade within the framework of a consistent econometric model. In addition, we will try to make inferences about the effects of environmental sustainability, inflation, employment, growth rates, gross capital formation, exchange rate and human development on international trade. For these purposes, in the next section, some studies conducted in the past regarding geopolitical risks will be discussed. The literature section will be followed by a section containing information about the econometric model and the data set used in this model. In the estimation section, the results obtained from econometric analyzes will be reported and these results will be evaluated. The last part of the study will include general evaluations of the results obtained from policy recommendations and predictions.

Literature

In a study by (Pyo, 2021), the role of geopolitical effects on the total economic variables of South Korea was investigated using the geopolitical risk index of (Caldara & Iacoviello Matteo, 2018). It was found that negative geopolitical effects did not have a statistically significant effect on the stock price index, industrial production, employment or gross trade volume. Also, changes in the stock market index were found to be immune to geopolitical shock in South Korea. In its conclusion, (Pyo, 2021) states that "even though there are geopolitical risks, market participants suggest that it is highly unlikely that geopolitical risk will turn into full-scale war". (Pyo, 2021)study presented an important policy implications for stabilizing South Korea's macro economy and financial markets. The findings of the study suggested that radical swings in interventionist policies should remain in a limited area, despite the geopolitical risks caused by the tensions between the south and north of Korea. In addition, considering that geopolitical risks are not a determining factor in the behavior of market agents, aggressive and interventionist government behavior causes pessimistic expectations. In a study conducted by (Adedoyin et al., 2022)for the Malaysian economy, the relationship between economic policy uncertainty (EPU) and Geopolitical risks (GPR) and export-led growth (ELG) hypothesis was investigated. According to the results of the study, although the Geopolitical Risk (GPR) leads to negative changes in RGDP, this negative effect alone was found to be insignificant.

(Le & Tran, 2021) conducted a study using a comprehensive sample covering the years 1995-2018. In their study, the impact of geopolitical risk on corporate investment in Asian countries was examined. As a result of the study, it has been seen that geopolitical risks are negatively related to the investments of the firms. It was noted that geopolitical risks in China and Russia have a major impact on corporate investments, whereas they have a less significant impact on India and Turkey. More detailed analysis shows that geopolitical risks have limited effects on firms with adequate cash positions. The fact that companies that are less affected by the negative effects of geopolitical risks have more cash reserves supports this inference. Additionally, it has

been found that firms with higher investment irreversibility tend to have a higher negative impact of geopolitical risk on their investments.

In their study, (Yang et al., 2022) examined how price changes in the commodity market, one of the main indicators of the world economy, react to negative shocks caused by geopolitical risks and uncertainties. In this study, researchers used two different geopolitical risk indicators and four indices to represent the commodity market. it tests the time-varying effects of leopolitical risks on the commodity market and examined the time-varying effects of geopolitical risks on different commodity markets.(Yang et al., 2022) evaluated their studies on trade policy uncertainty and geopolitical risks under four main headings.First, they found that trade policy uncertainty and geopolitical risks have significant time-varying effects on commodity markets, with the former being a short-term effect before 2006 and then becoming a medium- to long-term effect. Second, trade policy uncertainty has been found to have a significantly positive and time-varying impact on geopolitical risks, with the relatively long-term impact being more pronounced before 2017. After 2017, it was determined that the short-term effect was dominant. Commercial uncertainties of geopolitical risks generally have a positive effect, except for a short period (2002-2006). Thirdly, geopolitical risks appear to affect commodity prices both positively and negatively. For example, while 2003 was the year when geopolitical risks negatively affected commodity prices, 2004 was the year when these risks affected commodity prices positively. Fourth, the effects of geopolitical risks on commodity prices are not homogeneous. As a result, it was revealed that commodity prices, as well as energy and agriculture, were affected by geopolitical risks and uncertainties in a multifaceted way. (Kim & Jin, 2023) examined the impact of geopolitical risk on South Korea's international trade in their study. Multiple regression analysis was performed and popular geopolitical risk indices were used to determine the relationship between Korea's international trade and geopolitical risk from 1991 to 2020. In addition, the exchange of goods with 10 major trading partners was also investigated. According to the results found, Korea's international trade is negatively associated with geopolitical risk. Second, the negative impact of geopolitical risks varies according to the major trading partners. Finally, the degree of negative relationship between geopolitical risk and exports/imports with trading partners depends on the relative weight of trade.

In his study covering the period 2003-2020 and 41 countries (Yu & Wang, 2023)), he examined the relationship between geopolitical risks and foreign direct investments. The results show that the geopolitical risks of the receiving country affect foreign direct investments, market growth, access to resources and strategic decisions. The findings obtained in the study were retested with the clustering fixed-effects regression method. New results reveal that interdependence is a factor that reduces the negative effects of geopolitical risks. Therefore, foreign direct investments in countries that are mutually dependent on each other are less affected by the negative effects of geopolitical risks.

(Das et al., 2023) examined the relationship between geopolitical risks, a subject that has not been studied much, and corporate investments, using data between 2020-2023, which can be considered a very short period. The results revealed that there was an inverse relationship between the two main variables. It also showed that although companies were in very good financial situations, they could not completely escape the harmful effects of geopolitical risks. They also show that firms cut more investment when GPR rises than when firms fall equally.(Wu et al., 2022) examined the effects of country risks and geopolitical risks on income inequality in a panel data set of nineteen emerging market economies. Five-year average data from 1985 to 2020 were evaluated. Using the FGLS and LSDVC estimates, they found that all measures of risk were positively associated with income inequality. The article revealed that all risks increase income inequality in developing economies.

(Rumokoy et al., 2023)analyzed the impact of geopolitical risks on the capital investments of mining companies operating in Australia between 2011 and 2020. In this study, the analysis

was made using the GPR index developed by Caldara and Iacoviello (2022). Accordingly, GPR was found to be strongly and negatively correlated with corporate investment. The study found that firms are more likely to reduce their investments during periods of increased geopolitical events. Moreover, although the damping effect of GPR disappears after a four-year delay, firms are more likely to make investment decisions before they make investment decisions. It has been determined that they wait until the geopolitical risk decreases beforehand. (Gozgor et al., 2022)examined the impact of geopolitical risks on capital investments in travel and tourism in 18 emerging economies between 1995 and 2018. Based on a text-search algorithm(Caldara Dario & Iacoviello Matteo, 2019). They faund that the effect of geopolitical risks on capital investments in tourism is negative.

Model costruction and data collection

Multiple estimators were used in this study. Explaining these estimators in detail is, of course, beyond the limits of this study. For this reason, it will be sufficient to give general information about the estimators used.

One of the estimators used in the study is the pooled estimator. This estimator aggregates the cross-sections that make up the data set and gathers all observations at any given time into a single data set. In this method, a standardized regression estimator is applied(Baltagi, 1988). Therefore, this estimator can only be useful when we examine the effects of cross-sections and related changes. However, it is quite insufficient to examine the effect of time changes. Moreover, the biggest shortcoming of this estimator is that it ignores effects such as heteroscedasticity, autocorrelation and cross-sectional dependence(Su et al., 2012). The pooled GARCH estimate is an extension of the pooled estimator and takes into account heteroscedasticity and time-dependent changes in the data. It is possible to say that, in general, GARCH models are used to estimate changes over time (Engle et al., 2012).

On the other hand, it would be useful to make explanations about the content of the commonly used fixed effect and random effect estimators. It will be seen that the fixed effect estimator is used among the results reported in the following lines. These estimators are used to evaluate heterogeneities and time-related effects that cannot be tracked in the data set. The fixed effect estimator controls for unit effects that are unobservable or do not vary over time. The control method is based on the principle of calculating the deviations of observations from cross-sectional averages(Bai, 2009). The random effect estimator is based on the principle that cross-sectional but unobservable effects are unrelated to control variables. Accordingly, it assumes that these unobserved effects are coincidental and estimates the mean and variance of these effects (Services et al., 2007).

GMM (Generalized Method of Moments) and GMM-GARCH (Generalized Method of Moments with Generalized Autoregressive Conditional Heteroskedasticity) are among the estimators used in the study. In the GMM estimator, moment conditions are determined depending on the parameters used in the estimation model. These moment conditions are functions that are expected to be equal to zero. The GMM estimator minimizes the differences between the samples selected with these moment conditions(Blundell et al., 2000). As for the GMM-GARCH estimator, it adopts the principle that the moment conditions are based on the conditional variance of the model. This estimator estimates the coefficients of the GARCH model, which includes the mean equations and variance changes obtained based on these conditions. This method is especially used in estimating financial series where there is a concentration of volatility (Hondroyiannis et al., 2008).

Estimation results

We will start evaluating the results obtained from the predictions by evaluating the results obtained from the predictions made without any country discrimination. These predictions will not

only make the predictions reported on the following pages more understandable, but will also reveal the differences between the models and help understand the changes.

The coefficients of the Geopolitical Risk Index (GPR), which is the key variable whose impact was examined in this study, were statistically significant only in the Pooled and Pooled GARCH estimators. The coefficients are positive. This means that if the geopolitical risks of the countries subject to the study increase, Turkey's exports to these countries increase. The relationship between countries' environmental sustainability (SUS) and Turkey's exports is another linear relationship obtained from forecasters. It is seen that this relationship is statistically significant except for GMM estimators. One of the most important results revealed by the first table is that inflation (INF) and employment (EMP) in trading partners negatively affect Turkey's exports. On the other hand, as expected, the growth rates (GRTH) of these trade partner countries increase Turkey's exports. However, it can be seen that statistically significant results cannot be obtained from gross capital formation (CF) and exchange rate (EXC) variables. The relationship between human development (HDI) of trading partners and Turkey's exports is linear in some estimators and inverse in others. For this reason, it is not possible to make a consistent evaluation about HDI at this stage.

Time effects were not controlled for in these results. Obtaining new results by using these estimators again and controlling the time effect this time will make it possible to more accurately evaluate the effects of other factors affecting Turkey's exports. The second table is reported for this purpose. The GPR variable appears to be statistically significant in the first three predictors and as in the previous results, indicating a positive relationship. Results for the variables INF, EMP, GRTH and HDI remained largely unchanged. However, when we fix the time, it is observed that there is a variable environmental sustainability (SUS) that differs significantly from the results in the previous table. The linear relationship observed in the previous table has turned into a statistically insignificant relationship here.

Table 1

	Model1	Pool	Pool_garhc	Fixed	GMM	GMM_garch	FLGS_	FLGS_garch
GPR	0.0487	0.368***	0.368***	0.0930	0.154	0.154	0.0190	0.0190
	(0.0913)	(0.0849)	(0.0849)	(0.0754)	(0.156)	(0.156)	(0.0184)	(0.0184)
LOGSUS	1.160***	0.273***	0.273***	0.891***	-0.0256	-0.0256	0.0205**	0.0205**
	(0.234)	(0.0387)	(0.0387)	(0.178)	(0.0581)	(0.0581)	(0.00979)	(0.00979)
INF	-0.00412**	-0.00990**	-0.00990**	-0.00499**	-0.00274**	-0.00274**	-0.00287***	-0.00287***
	(0.00194)	(0.00445)	(0.00445)	(0.00210)	(0.00110)	(0.00110)	(0.000880)	(0.000880)
GDP	0.00712***	0.0210***	0.0210***	0.0111***	0.0128***	0.0128***	0.0106***	0.0106***
	(0.00189)	(0.00562)	(0.00562)	(0.00182)	(0.00205)	(0.00205)	(0.00325)	(0.00325)
EXC	0.0000447	0.0000138***	0.0000138***	-0.0000139	0.00000885	0.00000885	0.00000215	0.00000215
	(0.0000347)	(0.00000452)	(0.00000452)	(0.0000273)	(0.00000647)	(0.00000647)	(0.00000179)	(0.00000179)
HDI	-3.624**	2.767***	2.767***	-2.655**	0.414**	0.414**	0.255**	0.255**
	(1.350)	(0.228)	(0.228)	(1.089)	(0.197)	(0.197)	(0.102)	(0.102)
EMP	0.00295	-0.0328***	-0.0328***	-0.00655	-0.00959*	-0.00959*	-0.00272**	-0.00272**
	(0.00864)	(0.00206)	(0.00206)	(0.00568)	(0.00532)	(0.00532)	(0.00121)	(0.00121)
CF	0.0127	-0.000617	-0.000617	0.00894	-0.00147	-0.00147	-0.00128	-0.00128
	(0.00884)	(0.00451)	(0.00451)	(0.00674)	(0.00382)	(0.00382)	(0.00102)	(0.00102)
L.LogEX				0.682***	0.924***	0.924***	0.944***	0.944***
				(0.0768)	(0.0426)	(0.0426)	(0.0186)	(0.0186)
Constant	5.043***	4.668***	4.668***	1.597*	0.729*	0.729*	0.250**	0.250**
	(1.316)	(0.223)	(0.223)	(0.817)	(0.407)	(0.407)	(0.121)	(0.121)
Observations	353	353	353	312	313	313	313	313
Adjusted R-squared	0.245	0.641	0.641	0.975				
sarganp					1.60e-10	1.60e-10		
hansenp					0.963	0.963		
ar2p					0.0438	0.0438		

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

169

Table 2

	Pool	Fixed	Fixed_garch	GMM	FLGS_	FLGS_garch
GPR	0.368***	0.142*	0.142*	0.212	0.0225	0.0225
	(0.0618)	(0.0808)	(0.0808)	(0.141)	(0.0162)	(0.0162)
LOGSUS	0.273***	0.0275	0.0275	-0.0850	0.00945	0.00945
	(0.0346)	(0.201)	(0.201)	(0.0810)	(0.00693)	(0.00693)
INF	-0.00990***	-0.00409*	-0.00409*	-0.00152	-0.00249***	-0.00249***
	(0.00371)	(0.00229)	(0.00229)	(0.00173)	(0.000900)	(0.000900)
GDP	0.0210***	0.0105***	0.0105***	0.0139***	0.0120***	0.0120***
	(0.00560)	(0.00251)	(0.00251)	(0.00355)	(0.00301)	(0.00301)
EXC	0.0000138**	-0.0000122	-0.0000122	0.0000119	0.00000122	0.00000122
	(0.00000560)	(0.0000239)	(0.0000239)	(0.00000867)	(0.00000180)	(0.00000180)
HDI	2.767***	-4.071**	-4.071**	0.422	0.208**	0.208**
	(0.249)	(1.842)	(1.842)	(0.443)	(0.0857)	(0.0857)
EMP	-0.0328***	-0.0104	-0.0104	-0.0126	-0.00191*	-0.00191*
	(0.00280)	(0.00649)	(0.00649)	(0.00853)	(0.00100)	(0.00100)
CF	-0.000617	0.00917	0.00917	0.000130	-0.00184**	-0.00184**
	(0.00402)	(0.00646)	(0.00646)	(0.00420)	(0.000878)	(0.000878)
L.LogEX		0.626***	0.626***	0.949***	0.951***	0.951***
		(0.0809)	(0.0809)	(0.0942)	(0.0151)	(0.0151)
Constant	4.668***	5.921***	5.921***	0.904	0.225**	0.225**
	(0.253)	(1.794)	(1.794)	(0.669)	(0.0998)	(0.0998)
Observations	353	312	312	313	313	313
Adjusted R-squared	0.641	0.979	0.979			
sarganp				0.00000347		
hansenp				1.000		
ar2p				0.0665		

Standard errors in parentheses
* $p<0.10$, ** $p<0.05$, *** $p<0.01$

In the analyzes carried out up to this stage, no differences were observed in terms of trading partners. However, Turkey has become increasingly integrated with the world economy after 1980 and has an important position where supply chains intersect throughout the historical process. This feature has caused Turkey to establish commercial relations with countries with very different characteristics and development levels. Different development levels may affect the quality of commercial relations between countries and may also affect the degree of these effects (Ramzan et al., 2019). Therefore, remaking the forecasts by considering different development levels will make it possible to evaluate more consistently how geopolitical risks affect Turkey's exports. As it is known, one of the most important indicators of the level of development is the level of income. Estimates made by income level are reported in the table below. (ALL) refers to all countries, (HINC) refers to high-income countries, (MINC) refers to middle-income countries, (LINC) refers to low-income countries, (MH) refers to middle-high income and (ML) refers to middle-low-income countries.

The most important result that stands out in Toblo is that GPR is statistically significant and has a positive coefficient only in low-income countries. Accordingly, when there is an increase in the geopolitical risks of low-income countries, Turkey could export more to these countries. It is not possible to say this for countries in the middle- and high-income groups. The SUS variable does not have a statistically significant coefficient in middle-income countries. As sustainability decreases in other country groups, Turkey's exports to these countries increase. When we look at the inflation in the trading partner, we see that the results differ according to income groups. Rising inflation in high-income countries increases Turkey's exports to these countries. However, inflation increases in middle and low-income countries have a decreasing effect on Turkey's exports. Another noteworthy detail here is that the ENF coefficient for high-income countries is larger compared to others. This means that inflationary increases recorded in high-income countries increase Turkey's exports faster than the decline caused by inflationary increases recorded in middle- and low-income countries. Therefore, it is possible to say that Turkey's exports are more sensitive to inflation in high-income countries compared to middle- and low-income countries.

Another variable with remarkable results is HDI. When we classify countries according to their income levels, it is seen that their human development levels have different effects on Turkey's exports. First, increases in human development in all trading partners reduce Turkey's exports regardless of their development level. But these declines, although statistically insignificant, are relatively more limited in high-income countries. It is seen that as the level of development decreases, the coefficients increase in absolute terms and become more statistically significant. According to this result, it can be said that Turkey's exports are negatively affected at a higher level by the human development in low- and middle-income countries.

While no significant results can be obtained regarding the impact of exchange rate and capital formations on Turkey's exports, GDP has a positive coefficient and is statistically significant in all country groups. When the change of coefficients according to income groups is examined, it is seen that GDP increases Turkey's exports more strongly in countries with low-income levels. Because while the coefficient obtained for high-income countries is 0.00536, the coefficient obtained for middle and low-income countries is 0.0121. This means that Turkey's exports are 2.25 times more positively affected by the GDP increases of low- and middle-income countries. It is seen that the employment (EMP) variable is statistically significant only in low-income countries. Accordingly, employment in low-income countries negatively affects Turkey's exports.

Table 3

	All	HINC	MINC	MHINC	LINC	MLINC
L.LogEX	0.682***	0.456***	0.964***	0.843***	0.494***	0.713***
	(0.0768)	(0.101)	(0.182)	(0.169)	(0.123)	(0.0848)
GPR	0.0930	-0.0315	0.240	0.0886	0.739***	0.258
	(0.0754)	(0.0489)	(0.212)	(0.0840)	(0.272)	(0.195)
LOGSUS	0.891***	0.711***	0.490	0.587**	0.874*	0.831***
	(0.178)	(0.215)	(0.393)	(0.251)	(0.444)	(0.268)
INF	-0.00499**	0.0219***	-0.00710	-0.00573**	-0.00363	-0.00573**
	(0.00210)	(0.00663)	(0.00448)	(0.00268)	(0.00279)	(0.00278)
GDP	0.0111***	0.00536***	0.0106*	0.00933***	0.0161***	0.0121***
	(0.00182)	(0.00139)	(0.00583)	(0.00208)	(0.00295)	(0.00294)
EXC	-0.0000139	0.0000107	0.0000545	0.0000337	-0.0000437	-0.00000157
	(0.0000273)	(0.000708)	(0.0000420)	(0.0000356)	(0.0000356)	(0.0000301)
HDI	-2.655**	-1.248	-3.715*	-2.364*	-2.044	-4.177**
	(1.089)	(1.083)	(2.061)	(1.275)	(2.365)	(1.729)
EMP	-0.00655	0.00877	-0.0164	-0.00758	-0.0150**	-0.00976
	(0.00568)	(0.00648)	(0.0160)	(0.0108)	(0.00693)	(0.00736)
CF	0.00894	0.0105	0.0150	0.0159	0.00239	0.00918
	(0.00674)	(0.00702)	(0.0132)	(0.0107)	(0.00534)	(0.00801)
Constant	1.597*	1.666*	1.882	1.151	3.096***	2.759**
	(0.817)	(0.852)	(1.664)	(0.901)	(1.036)	(1.372)
Observations	312	128	80	208	72	152
Adjusted R-squared	0.975	0.993	0.902	0.973	0.959	0.943

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

The next table presents panel regression results with standard errors corrected. In this method, corrected error terms are calculated in linear models whose parameters are estimated with OLS or Prais-Winsten.The distinguishing feature of this method is that the disturbances are, by default, heteroskedastic and contemporaneously correlated across panels.

According to the results obtained from this estimation method, GPR has statistically significant results for countries in the middle and middle-low income group. The negative coefficient of the GPR variable means that Turkey's exports to these countries will decrease in case the geopolitical risks of the countries in the middle and low-middle income group increase. The negative sign of the coefficient of the GPR variable means that if the geopolitical risks of the countries in the middle and low-middle income group increase, Turkey's exports to these countries will decrease.

In the estimations made regardless of income groups, it is seen that the HDI variable has a positive coefficient and is significant. On the other hand, when only high-income countries are considered, the coefficient is negative, and when middle-low-income countries are considered, the coefficient is positive. Sign changes in the coefficients mean that human development has heterogeneous effects on Turkey's exports by country groups. Accordingly, increases in human development levels in countries in the high-income group reduce Turkey's exports, while increases in human development in countries in the middle-low income group increase Turkey's exports. It is observed that the employment variable has significant coefficients from high-income countries to low- and middle-income countries. Since the coefficients of this variable are negative, employment emerges as a factor reducing Turkey's exports. A similar situation is observed in the exchange rate. While increases in exchange rates in high-income countries do not have significant effects on Turkey's exports, it is seen that the coefficients become significant as we move towards middle and low-income countries. Increases in exchange rates in middle-income countries have negative effects on Turkey's exports. However, when moving towards middle-low and low-income countries, the depreciation of national currencies against the US dollar increases Turkey's exports to these countries. When compared to the previous estimation method, it can be seen that the SUS variable is a variable that yields statistically significant results only for all countries and countries in the middle-high income group. It can be said that the variables that overlap with the previous estimates in terms of the signs of the coefficients, income groups and statistical significance levels are inflation, capital stock and GDP.

Finally, country groups were estimated with the GMM estimator and the results were reported in the table. GPR and SUS variables are significant for middle-low income countries and according to these results, increasing geopolitical risks and disruptions in sustainability increase Turkey's exports to low-middle income countries. The results of inflation and GDP support the previous forecasters and it can be said that inflation reduces Turkey's exports and GDP increases Turkey's exports. The increase in the losses of countries' national currencies against the US dollar reduces Turkey's exports in high-income countries and increases them in middle-low-income countries. Increases in human development also support the results obtained from previous estimates and turn into a factor reducing Turkey's exports in high-income countries. While it is not possible to make a consistent inference regarding the employment variable in high-income countries, it is possible to say that the increases in employment in both medium-, low- and middle-low-income countries have turned into a factor that reduces Turkey's exports. Increases in the capital stock increase Turkey's exports only in high-income countries, and the statistically insignificant coefficients of the capital stock in other countries prevent us from making inferences on this issue.

Table 4

	all	hinc	minc	MHinc	lminc	MLinc
L.LogEX	0.944***	0.998***	0.784***	0.971***	0.798***	0.768***
	(0.0186)	(0.0114)	(0.0671)	(0.0101)	(0.0947)	(0.0555)
GPR	0.0190	-0.00651	0.433***	0.00341	0.117	0.410***
	(0.0184)	(0.0134)	(0.137)	(0.0147)	(0.303)	(0.110)
LOGSUS	0.0205**	0.00408	-0.0600	0.0191**	0.0720	0.0348
	(0.00979)	(0.0108)	(0.0731)	(0.00879)	(0.0458)	(0.0249)
INF	-0.00287***	0.0246***	-0.00322	-0.00216	-0.00337***	-0.00385***
	(0.000880)	(0.00615)	(0.00214)	(0.00186)	(0.00117)	(0.000905)
GDP	0.0106***	0.00775***	0.0166***	0.00773***	0.0159***	0.0161***
	(0.00325)	(0.00230)	(0.00351)	(0.00257)	(0.00428)	(0.00326)
EXC	0.00000215	-0.0000172	0.00000269	-0.00000229*	0.0000104**	0.00000637**
	(0.00000179)	(0.0000417)	(0.00000319)	(0.00000118)	(0.00000429)	(0.00000283)
HDI	0.255**	-0.681**	0.137	0.0970	0.698***	0.313
	(0.102)	(0.296)	(0.433)	(0.0844)	(0.205)	(0.225)
EMP	-0.00272**	-0.0000963	-0.00747*	-0.00113	-0.00669*	-0.00735***
	(0.00121)	(0.00113)	(0.00421)	(0.000977)	(0.00372)	(0.00225)
CF	-0.00128	0.00249	-0.00583*	-0.000571	-0.0103**	-0.00646***
	(0.00102)	(0.00234)	(0.00336)	(0.00126)	(0.00491)	(0.00207)
Constant	0.250**	0.567***	1.851***	0.131	0.975*	1.491***
	(0.121)	(0.203)	(0.556)	(0.116)	(0.520)	(0.417)
Observations	313	128	80	208	73	153
Adjusted R-squared						

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

Table 5

	all	Hinc	Minc	MHinc	Linc	MLinc
L.LogEX	0.770***	0.968***	1.112***	0.964***	0.521***	0.614***
	(14.09)	(17.99)	(4.21)	(8.11)	(8.12)	(5.35)
GPR	0.186	-0.0422	0.278	0.0947	0.584	0.569*
	(1.09)	(-1.23)	(1.24)	(0.61)	(1.55)	(1.88)
LOGSUS	0.0132	0.0447	-0.167	-0.0290	0.157**	-0.0124
	(0.19)	(1.33)	(-0.51)	(-0.23)	(2.04)	(-0.10)
INF	-0.00295**	0.0242***	-0.00350*	-0.00101	-0.00799***	-0.00393**
	(-2.27)	(3.22)	(-1.65)	(-0.45)	(-8.01)	(-2.50)
GDP	0.0125***	0.00771***	0.0161***	0.00943***	0.0186***	0.0144***
	(4.76)	(3.93)	(4.13)	(3.33)	(11.94)	(3.73)
EXC	0.0000996	-0.000224**	0.0000243	0.00000675	0.00000887	0.0000116*
	(1.60)	(-2.37)	(1.18)	(0.54)	(1.21)	(1.87)
HDI	1.038***	-2.033***	-0.148	0.576	0.754	1.270**
	(3.16)	(-3.07)	(-0.13)	(1.21)	(1.56)	(2.48)
EMP	-0.0231***	0.00214	-0.0248**	-0.0190	-0.0138***	-0.0285**
	(-2.92)	(0.55)	(-2.05)	(-1.53)	(-3.15)	(-2.56)
CF	0.0120	0.0186***	-0.00297	0.0120	-0.00867	0.0126
	(0.99)	(2.88)	(-0.56)	(1.10)	(-1.25)	(0.84)
Constant	1.466**	1.417***	1.372	0.583	2.640***	2.507**
	(2.57)	(2.81)	(1.06)	(1.24)	(3.81)	(2.27)
Observations	313	128	80	208	73	153
sarganp	0.000000325	0.0205	0.115	0.000639	0.149	0.0305
hansenp	0.965	1.000	1	1.000	1	1.000
ar2p	0.0611	0.389	0.236	0.247	0.510	0.165

t statistics in parentheses
* p<0.10, ** p<0.05, *** p<0.01

Conclusion and policy recomendations

While geopolitical risks have an impact on many economic parameters, this study only examines the impact of these risks on Turkey's exports. Geopolitical risks can affect countries' access to international markets, trade routes, customs tariffs and trade sanctions. It can determine the country preferences of importers and exporters. Traders are more likely to trade with countries where geopolitical risks are low and predictability is high. In addition, geopolitical risks caused by political instability can reduce trade options for countries and make it difficult to conclude trade agreements between countries and expand existing agreements. On the other hand, geopolitical risks can be observed most easily and clearly on exchange rates. Sudden changes in geopolitical risks can be quickly transferred to exchange rates, which largely reflect the competitiveness of countries. Geopolitical risks increase the sudden fluctuation of the relative value of countries' national currencies. Fluctuations in exchange rates affect trade between countries through many channels, especially by reducing the predictability of trade profits.

Geopolitical risks and tensions often lead to new trade regulations. Sanctions, trade controls, tariff changes and embargoes emerge as reflections of geopolitical risks and tensions on trade. But perhaps more importantly, geopolitical risks are reflected in supply chains. When we look at today's trade flows, it can be seen that a significant part of them is intermediate goods and raw materials. Under this image where trade resembles a chain, geopolitical risks can disrupt the supply chain. Increasing geopolitical risks and tensions in any region of the world may affect trade between countries by causing interruptions in supply chains that include or pass through the region in question. The reflection of geopolitical risks on trade may occur through the impact it will have on trade financing. Because countries with high geopolitical risks may experience difficulties in accessing finance. Financial institutions may be reluctant to allocate funds to countries with high geopolitical risks. All these reasons enabled this study to be shaped around the question of how geopolitical risks affect Turkey's exports.

For this purpose, macroeconomic and human development or environmental sustainability data of Turkey's 41 trading partner countries, whose geopolitical risk was calculated, were compiled and surprising results were obtained by using many different estimation methods. In the conclusion section, it would be appropriate to allocate the main position to the main question of the study, which is how geopolitical risks affect Turkey's exports. At this point, it would not be wrong to say that the answer varies according to income groups. When we gather high-income countries in a group and examine how Turkey's exports to these countries are affected by geopolitical risks, we can say that it is not possible to make a positive or negative assessment about whether Turkey's exports to these countries are affected by geopolitical risks. Therefore, geopolitical risks seem not to be a condition for Turkey's exports to these countries. It becomes important at this point to ask the question of what could be the reasons why Turkey's exports to high-income countries are not affected by geopolitical risks. Although these may differ by country, period and product groups, it is possible to collect them under a few headings. Turkey's diversification of its markets in exports to high-income countries, its long-term trade agreements, its consistent stance in foreign policy and diplomatic relations, its product diversification, its risk management strategies being correctly determined, all of these being supported by diplomatic initiatives and political stability; All of these may have been beneficial in protecting Turkey's exports from geopolitical risks. However, all these evaluations are based entirely on reasoning carried out on economic-political grounds. Revealing the reasons for this with empirical findings constitutes an untouched area for other researchers.

Fakat jeopolitik riskler, düşük ve orta gelirli ülkelerde Türkiye'nin ihracatı için anlamlı ve önemli bir değişken görünümündedir. Bütün tahmincilerden elde edilen sonuçlar jeopolitik

risklerdeki artışların orta ve düşük gelirli ülkelerin Türkiye'den yaptığı ithalatı arttırdığını ortaya koymaktadır. Bu doğrusal korelasyon, bu çalışmanın ortaya koyduğu en önemli sonuç ve bu çalışmanın en dikkat çekici çıktısı kabul edilmelidir. Çünkü Türkiye'nin ihracatının jeopolitik risklerden beslendiği sonucu hiç uzak bir çıkarsama değildir. Bu çıktının nasıl kullanılabileceğine değinmeden önce, bunun olası nedenleri üzerine birkaç cümle kurmak sonuç bölümü için önemli olacaktır. Öncelikle, orta-düşük gelirli ülkelerin, olası büyüme yüksek büyüme potansiyelleri sebebiyle diğer ülkeler için pazar olma olasılıkları oldukça yüksektir. Bu da daha geniş bir müşteri kompozisyonu anlamına gelerek, bu pazarlara ihracatı kolaylaştırmaktadır. Tabi ki bu müşteri çeşitliliği daha yüksek talep anlamına gelmektedir. Özellikle enerji, doğal kaynaklar ve temel tarım ürünleri burada ön plana çıkmaktadır. Bu ürünlerin de yaşam için zaruri oldukları düşünüldüğünde ihracatın jeopolitik risklerle birlikte artması daha anlaşılır hale gelmektedir. Öte yandan Türkiye'nin söz konusu ülkelere yaptığı ihracatta önemli bir karşılaştırmalı üstünlüğe sahip olması, düşük ve orta gelirli ülkelerde artan jepolitik risklerin Türkiye'ye daha fazla ihracat olanağı tanımasının muhtemel nedenleri arasındadır. Bununla birlikte, ihracatçıların uzun vadeli bakış açısına sahip olmaları kısa dönemde artan jeopolitik risklerin üstesinden gelinerek, kısa dönemde artan jeopolitik risklere rağmen ihracatlarını arttırmaları da olasılık dahilindedir.

However, geopolitical risks appear to be a meaningful and important variable for Turkey's exports in low- and middle-income countries. The results obtained from all forecasters reveal that increases in geopolitical risks increase the imports of middle and low-income countries from Turkey. This linear correlation should be considered the most important result of this study and the most striking outcome of this study. Because it is not a far-fetched conclusion that Turkey's exports are fueled by geopolitical risks. Before talking about how this output can be used, it will be important for the conclusion section to make a few sentences about the possible reasons for this. First of all, middle-low income countries are very likely to become markets for other countries due to their potential for high growth. This means a wider customer composition, making exports to these markets easier. Of course, this customer diversity means higher demand. Especially energy, natural resources and basic agricultural products come to the fore here. Considering that these products are essential for life, it becomes more understandable that exports increase with geopolitical risks. On the other hand, the fact that Turkey has a significant comparative advantage in its exports to these countries is among the possible reasons why increasing geopolitical risks in low- and middle-income countries give Turkey more export opportunities. However, it is also possible for exporters to have a long-term perspective and to overcome the increasing geopolitical risks in the short term and increase their exports despite the increasing geopolitical risks in the short term.

This result should be taken into consideration when determining foreign trade and foreign policy strategies. This result indicates that encouraging market diversification should be the main policy recommendation in international marketing strategies. For this reason, export incentive programs should include support for businesses to determine their market targeting. Thus, monitoring of geopolitical risks at the company level will be encouraged. Trade agreements should be made considering geopolitical risks, and it should not be forgotten that the impact of geopolitical risks on exports for Turkey varies depending on the income level of the countries. Market research, logistics infrastructure investments, risk assessment and management training that will limit or compensate for the impact of geopolitical risks on trade may be other topics that should be taken into consideration when making trade policies. As a result, these analyzes evaluated the factors affecting Turkey's exports in detail according to income groups and revealed that the effects of some variables vary according to income level. These results can be an important source of information in determining and developing Turkey's trade strategies and policies.

References

Adedoyin, F. F., Afolabi, J. O., Yalçiner, K., & Bekun, F. V. (2022). The <scp>export-led</scp> growth in Malaysia: Does economic policy uncertainty and geopolitical risks matter? *Journal of Public Affairs*, *22*(1). https://doi.org/10.1002/pa.2361

Bai, Jushan. (2009). Panel Data Models With Interactive Fixed Effects. *Econometrica*, *77*(4), 1229–1279. https://doi.org/10.3982/ECTA6135

Baltagi, B. H. (1988). Panel data methods. *Handbook of Applied Economic Statistics*, 311–323.

Blundell, R., reviews, S. B.-E., & 2000, undefined. (2000). GMM estimation with persistent panel data: an application to production functions. *Taylor & Francis*, *19*(3), 1–340. https://doi.org/10.1080/07474930008800475

Caldara, D., & Iacoviello, M. (2022). Measuring Geopolitical Risk. *American Economic Review*, *112*(4), 1194–1225. https://doi.org/10.1257/aer.20191823

Caldara, D., & Iacoviello Matteo. (2018). *Measuring geopolitical risk* (1222).

Caldara Dario, & Iacoviello Matteo. (2019). *Measuring Geopolitical Risk*.

Das, D., Dharmani, P., Dutta, A., & Basu, S. (2023). Does Geopolitical Risk Matter for Corporate Investments in the Hotel and Restaurant Industry? Evidence From India. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.4451305

Engle, R., Econometrics, M. S.-J. of F., & 2012, undefined. (2012). Forecasting intraday volatility in the us equity market. multiplicative component garch. *Academic.Oup.Com*. https://academic.oup.com/jfec/article-abstract/10/1/54/755620

Gozgor, G., Lau, M. C. K., Zeng, Y., Yan, C., & Lin, Z. (2022). The Impact of Geopolitical Risks on Tourism Supply in Developing Economies: The Moderating Role of Social Globalization. *Journal of Travel Research*, *61*(4), 872–886. https://doi.org/10.1177/00472875211004760

Hondroyiannis, G., Swamy, P., economics, G. T.-R. of world, & 2008, undefined. (2008). Some further evidence on exchange-rate volatility and exports. *Springer*, *144*(1), 151–180. https://doi.org/10.1007/s10290-008-0141-4

Kim, C. Y., & Jin, H. (2023). Does geopolitical risk affect bilateral trade? Evidence from South Korea. *Journal of the Asia Pacific Economy*, 1–20. https://doi.org/10.1080/13547860.2023.2204693

Le, A.-T., & Tran, T. P. (2021). Does geopolitical risk matter for corporate investment? Evidence from emerging countries in Asia. *Journal of Multinational Financial Management*, *62*, 100703. https://doi.org/10.1016/j.mulfin.2021.100703

Pyo, D.-J. (2021). Does Geopolitical Risk Matter? Evidence from South Korea. *Defence and Peace Economics*, *32*(1), 87–106. https://doi.org/10.1080/10242694.2020.1829937

Ramzan, M., Sheng, B., Shahbaz, M., Development, J. S.-… E., & 2019, undefined. (2019). Impact of trade openness on GDP growth: Does TFP matter? *Taylor & Francis*, *28*(8), 960–995. https://doi.org/10.1080/09638199.2019.1616805

Rumokoy, L. J., Omura, A., & Roca, E. (2023). Geopolitical risk and corporate investment in the metals and mining industry: Evidence from Australia. *Pacific-Basin Finance Journal*, *79*, 101991. https://doi.org/10.1016/j.pacfin.2023.101991

Services, O. T.-R.-D. & S., University, P., & 2007, undefined. (2007). Panel data analysis fixed and random effects using Stata (v. 4.2). *Academia.Edu*. https://www.academia.edu/download/57152357/-_Panel101.pdf

Su, L., Econometrics, S. J.-J. of, & 2012, 2012. (2012). Sieve estimation of panel data models with cross section dependence. *Elsevier*. https://www.sciencedirect.com/science/article/pii/S0304407612000073

Wu, W., Wang, L., Erzurumlu, Y. O., Gozgor, G., & Yang, G. (2022). Effects of Country and Geopolitical Risks on Income Inequality: Evidence from Emerging Economies. *Emerging Markets Finance and Trade*, *58*(15), 4218–4230. https://doi.org/10.1080/1540496X.2022.2070002

Yang, C., Niu, Z., & Gao, W. (2022). The time-varying effects of trade policy uncertainty and geopolitical risks shocks on the commodity market prices: Evidence from the TVP-VAR-SV approach. *Resources Policy*, *76*, 102600. https://doi.org/10.1016/j.resourpol.2022.102600

Yu, M., & Wang, N. (2023). The Influence of Geopolitical Risk on International Direct Investment and Its Countermeasures. *Sustainability*, *15*(3), 2522. https://doi.org/10.3390/su15032522

Metaverse in Education

Oğuz ONAT[1]

Introduction

The term "Metaverse" refers to a collective virtual shared space created as a result of the merging of the internet and the physical world. In this space, users can interact with each other and virtual objects, participating in real-time through avatars or digital representations (Zhang et al., 2022). The concept of the Metaverse has evolved over time with the development of virtual worlds and online games. These virtual worlds have provided users with interactive experiences, allowing them to explore, socialize, and showcase creativity within a digital environment (Zhang et al., 2022). The integration of the Metaverse into the field of education has the potential to revolutionize our learning methods. Educators can harness this potential by providing access to interactive virtual environments, offering engaging and interactive learning experiences that transcend the boundaries of traditional classroom settings (Zhang et al., 2022).

In this section, the definition and conceptual framework of the Metaverse, its evolution, and the importance of its integration into education will be examined. The Metaverse could have a transformative impact within the education sector, potentially leading to radical changes within the existing paradigm. Some of the most prominent benefits include immersive learning experiences, increased learning speed, an inclusive environment, and the ability to gain practical experience through application-based learning (De Felice et al., 2023). The Metaverse provides an interactive and multisensory learning experience (De Felice et al., 2023). By involving students in applications that might be risky and challenging in real-world conditions, the Metaverse reshapes traditional teaching methods. This approach helps students better understand theories and prepares them with skills for real-life experiences (Alfaisal et al., 2022).

Foundations of the Metaverse

Metaverse is a profound and multi-layered concept, requiring an in-depth examination of the technologies that enable its interactive and intrinsic features, alongside understanding its fundamental technical infrastructure. In this section, the key elements of the underlying technical infrastructure of the metaverse – such as computation, connectivity, and software – have been reviewed. Technologies facilitating the creation and consumption of experiences, such as Virtual Reality (VR) and Augmented Reality (AR), have been explored, delving into how they contribute to the formation and consumption of experiences within the metaverse. Furthermore, the section has addressed how the Internet of Things (IoT) and sensor networks, by providing data from the physical world, can enhance the metaverse experience.

Technical Infrastructure of the Metaverse

The technical infrastructure of the metaverse can be divided into three main layers: network, platform, and service.

• Network Layer: The network layer facilitates the connection and communication between devices and systems within the metaverse. Both wired and wireless networks, such as 5G, Wi-Fi, Bluetooth, and satellite networks, constitute this layer. The network layer supports high bandwidth, low latency, and the reliable transmission of large amounts of data across

---

[1] Lecturer, Yalova University

various domains and protocols. Additionally, the network layer provides the possibility for interaction and standardization between different metaverse platforms and services (Bailenson et al., 2018).

• Platform Layer: The platform layer provides the computation and storage resources for the metaverse. Both cloud computing and edge computing enable scalable, distributed, and on-demand processing of data and applications. Additionally, the platform layer supports various software frameworks and tools for developing and deploying metaverse experiences, including game engines, 3D modeling software, artificial intelligence (AI), blockchain, and cryptography (Bailenson et al., 2018).

• Service Layer: The service layer provides content and functionality for the metaverse. It encompasses user-generated and professionally produced content, including elements such as 3D models, textures, sounds, animations, and script files. Additionally, the service layer offers various features and interactions for metaverse users, including avatars, digital assets, social networks, e-commerce, education, and entertainment, among others (Bailenson et al., 2018).

Virtual Reality (VR) and Augmented Reality (AR) Technologies

Virtual reality (VR) and augmented reality (AR) are two technologies that are changing the way we use screens, creating new and exciting interactive experiences.

• VR Technologies: Virtual reality (VR) technologies encompass devices such as head-mounted displays (HMDs), controllers, trackers, haptic feedback systems, and more, creating a completely immersive virtual environment for the user. These technologies have the capability to simulate various educational scenarios and environments, including historical events, cultural spaces, scientific experiments, and more. Additionally, VR technologies can provide interactive feedback and guidance to learners through features such as voice recognition, gesture recognition, eye tracking, and others (Milgram & Kishino , 1994).

• AR Technologies: Augmented reality (AR) technologies encompass devices such as smart glasses, smartphones, tablets, projectors, and more, overlaying digital information onto the real-world view. AR technologies enhance the learning experience by providing additional information and context for real-world objects and situations. Moreover, AR technologies can facilitate collaborative learning by enabling multiple users to share the augmented reality view (Milgram & Kishino , 1994).

Internet of Things (IoT) and Sensor Networks

The Internet of Things (IoT) refers to the ability of devices containing sensors, processing capabilities, software, and other technologies to exchange data with other devices and systems through the Internet or other communication networks. Sensor networks, a subset of IoT, consist of spatially distributed sensors used to monitor physical or environmental conditions. These sensor networks can make significant contributions to the metaverse by providing data and feedback from the physical world.

• IoT Technologies: IoT technologies include devices such as sensors , actuators , microcontrollers , RFID tags , etc., that collect data from various sources such as temperature , humidity , light , sound , motion , etc. IoT technologies also include communication protocols such as MQTT , CoAP , HTTP/2 , etc., that transmit data over networks such as Wi-Fi , LoRaWAN , Zigbee , etc. IoT technologies also include cloud platforms such as AWS IoT , Azure IoT , Google Cloud IoT , etc., that store , process , analyze , visualize , and act on data from IoT devices (Atzori et al., 2010).

- Sensor Networks: Sensor networks are a type of IoT that consist of a large number of sensors that communicate with each other and with a central node or gateway. Sensor networks can monitor various physical or environmental parameters such as temperature, humidity, light, sound, motion, etc. Sensor networks can provide data and feedback from the physical world to the metaverse, such as the location, state, and condition of real-world objects and environments. Sensor networks can also enable bidirectional interaction between the metaverse and the physical world, such as controlling physical devices or changing physical conditions based on metaverse events (Akyildiz et al., 2002).

Pedagogical Implications of the Metaverse

The metaverse has the potential to revolutionize education by offering personalized and intrinsic learning experiences tailored to individual needs and preferences, providing effective and experiential learning opportunities, and cognitive benefits. In this section, the pedagogical impacts of the metaverse will be explored, examining how it can enhance both teaching and learning.

Personalized and Immersive Learning Experiences

The metaverse, utilizing advanced technologies, especially virtual reality (VR) and augmented reality (AR) technologies, can provide individuals with personalized and intrinsic learning experiences tailored to their needs and preferences. These technologies enable the creation of realistic simulations of real-world scenarios, allowing learners to explore, experiment, and interact in a safe and controlled environment. This situation facilitates deep engagement, better retention of information, and more effective transfer of learning to real-world situations (Dalgarno and Lee, 2010).

Active and Experiential Learning Opportunities

The metaverse can offer active and experiential learning opportunities that engage learners in the learning process effectively. By applying their knowledge and skills in hands-on experiments within a concrete context, learners can develop a deeper understanding and enhanced problem-solving abilities. Additionally, the metaverse provides collaborative learning opportunities where learners can collaborate on projects, share ideas, and learn from one another. This collaborative environment fosters mutual learning and knowledge exchange among learners (Dunleavy et al., 2009).

Multisensory Engagement and Cognitive Benefits

The metaverse can provide multi-sensory integration by simultaneously activating multiple senses, enhancing cognitive processing capacity, and improving memory recall. The concurrent activation of visual, auditory, and kinesthetic senses can create rich and intrinsic learning experiences that are more effective than traditional teaching methods. Similarly, the metaverse can offer cognitive benefits by reducing cognitive load, enhancing spatial reasoning abilities, and increasing creativity (Mikropoulos and Natsis, 2011).

Advantages and Challenges

The integration of the metaverse into education presents both advantages and challenges. In this section, the potential benefits of using the metaverse in education and the challenges that need to be addressed to effectively implement this technology have been examined."

Advantages of Metaverse Integration in Education

The metaverse has the potential to transform education by offering global access to education, simulations and practical training, collaboration and social learning, and gamification and motivation.

Global Access to Education: The metaverse enables students from anywhere in the world to participate in virtual classrooms, lectures, and workshops, providing access to global education opportunities. This can help bridge the digital divide and extend educational opportunities to underserved communities (Huang et al., 2010).

Simulations and Practical Training: The metaverse allows students to engage in practical activities and simulations in a virtual environment. This enables students to gain practical skills and apply their knowledge in a safe and controlled environment (Dalgarno and Lee, 2010).

Collaboration and Social Learning: The metaverse supports collaboration and social learning by allowing students to collaborate on projects, share ideas, and learn from each other. This fosters a sense of community and encourages peer-to-peer learning (Dunleavy et al., 2009).

Gamification and Motivation:The metaverse can incorporate gamification elements to increase motivation and engagement among students. By offering rewards, challenges, and feedback, the metaverse can make the educational experience enjoyable and engaging, encouraging students to achieve their goals (Kapp, 2012).

Challenges of Implementing the Metaverse in Education

Despite its transformative potential, the implementation of the metaverse in education faces several challenges that need to be overcome for effective utilization. These challenges include digital equity and accessibility, technological infrastructure, privacy, and ethical concerns.

Digital Equity and Accessibility: One of the major challenges in implementing the metaverse in education is ensuring digital equity and accessibility. Not all students have access to advanced technology such as high-speed internet or VR headsets. This disparity can hinder full participation in metaverse-based education for some students (Warschauer and Ames, 2010).

Technological Infrastructure: Another challenge in implementing the metaverse in education is ensuring the necessary technological infrastructure. This requires high-speed internet connectivity, powerful servers, advanced software, and more. The cost of this infrastructure can be high for some institutions (Bailenson et al., 2018).

Privacy and Ethical Concerns: The use of the metaverse in education also raises privacy and ethical concerns. Issues such as data collection, surveillance, and cyberbullying are of concern. Educators must address these concerns by establishing clear rules for behavior within the metaverse and protecting students' privacy (Mikropoulos and Natsis, 2011).

Case Studies

This section sheds light on the transformative potential of the metaverse in education through case studies highlighting its various applications in enhancing teaching and learning experiences. These case studies provide detailed insights into how the metaverse can be used to fundamentally reshape education, showcasing diverse applications that demonstrate its capacity to revolutionize the educational landscape.

Virtual Classrooms and Lecture Halls

irtual learning spaces within the metaverse, such as virtual classrooms and lecture halls, facilitate global education participation by overcoming geographical constraints. This inclusivity aims to narrow the digital divide, expanding educational opportunities to underserved communities. An empirical study conducted by Huang and colleagues (2010) examined students' attitudes toward virtual reality learning environments. This research, conducted within a constructivist framework, involved the participation of 72 undergraduate students in Taiwan, divided into experimental and control groups. The study revealed that

students using virtual reality exhibited positive developments in their attitudes towards learning, including motivation, attention, confidence, and satisfaction. The interactive and immersive experiences in virtual classrooms provide an environment conducive to positive pedagogical outcomes.

Laboratories and Simulations in a Virtual Environment

The integration of laboratories and simulations into virtual environments within the metaverse provides a controlled yet dynamic platform for hands-on learning. A comprehensive review by Dalgarno and Lee (2010) outlined the learning possibilities in 3D virtual environments, including spatial information representation, experiential learning, interaction, contextual learning, and collaborative learning. These opportunities enrich the learning experience and have the potential to significantly enhance pedagogical practices. Virtual laboratories within the metaverse allow students to develop practical skills and translate theoretical knowledge into practical applications.

Historical and Cultural Reconstructions for History Education

Metaverse's historical and cultural reconstructions offer students interactive ways to engage with history and culture. Champion's study (2015) focused on virtual heritage environments that allow students to explore historical sites interactively. The effectiveness of these environments in engaging students and enhancing their understanding of historical contexts is evident from the study's results. By immersing students in historical narratives and cultural settings, these virtual reconstructions surpass traditional pedagogical methods, providing students with an opportunity to experience history firsthand.

Language Learning through Immersive Environments

Metaverse serves as a canvas for imaginative language learning environments, offering students experiences in immersive language learning. Peterson's study (2010) examined how language learning occurs through massively multiplayer online role-playing games. Conducted on Japanese university students learning English, the study demonstrated that multiplayer online games provide effective platforms for interaction, collaboration, and task-based learning. This research highlights how the metaverse can function as a catalyst for students to enhance their language skills through direct interaction with native speakers and real-life language scenarios.

Collaborative Problem Solving in Virtual Spaces

Collaborative problem-solving finds a suitable ground within the metaverse, offering virtual spaces for students to solve complex problems together. Studies on developing problem-solving skills through computer-supported collaboration, such as the research conducted by Kirschner et al. (2009) with university students, have shown that collaborative learning with group feedback within virtual spaces is the most effective way to enhance problem-solving skills. This finding supports the potential of the metaverse in encouraging critical thinking, teamwork, and innovative solutions by utilizing collaborative learning environments.

These exemplary case studies extend beyond the examples discussed here, showcasing the transformative impact of the metaverse on education. From virtual space tours overcoming physical constraints (Mikropoulos and Natsis, 2011) to interactive virtual museums (Roussou et al., 2006), the influence of the metaverse on education is vast and varied.

Designing and Developing Educational Metaverse Content

The design and development of educational metaverse content encompass several key aspects, including content creation and curriculum integration, instructional design for virtual

learning environments, gamification, integration of interactive elements, and assessment of learning within the metaverse. This section delves into these aspects in greater detail.

Content Creation and Curriculum Integration

Creating educational content for the metaverse involves aligning the content with the curriculum and learning objectives. This requires a deep understanding of the subject matter and identifying effective pedagogical approaches to teach it most efficiently. Content creators should also consider how to integrate metaverse content with the overall curriculum, providing content that complements and enriches other teaching materials (Herrington et al., 2010).

Instructional Design for Virtual Learning Environments

Instructional design for virtual learning environments involves applying instructional design principles to create effective and engaging learning experiences. This includes defining clear learning objectives, selecting appropriate instructional strategies, developing assessment tools to measure learning outcomes, and providing feedback to students (Merrill, 2002). Instructional designers should also consider how to leverage the unique opportunities of virtual learning environments, such as interaction, immersion, and collaboration.

Incorporating Gamification and Interactive Elements

Integrating gamification and interactive elements into metaverse content can enhance learner engagement and motivation. Gamification involves creating a fun and engaging learning experience by incorporating game-like elements such as points, badges, leaderboards, and challenges (Kapp, 2012). Additionally, interactive elements like simulations, quizzes, and puzzles can be used to provide students with opportunities to apply their knowledge and receive immediate feedback.

Assessing Learning in the Metaverse

Assessing learning within the metaverse involves measuring students' progress toward defined learning objectives. This can be done through various methods, including formative assessments providing continuous feedback, summative assessments measuring overall achievement at the end of a unit or course, and performance-based assessments requiring students to demonstrate their skills and knowledge in a practical context (Pellegrino et al., 2001).

In addition to these methods, several recent studies provide insights into best practices for design and development. For instance, a study by Makransky et al. (2019) found that virtual reality simulations can enhance learning outcomes by providing participants with a deep and interactive experience. Another study by Jensen & Konradsen (2018) demonstrated that virtual reality can increase students' motivation and engagement by providing a sense of presence and impact.

Teacher and Learner Roles in the Metaverse

Integration of the metaverse into education presents both new opportunities and challenges for educators and students alike. This section provides a detailed examination of the dynamic evolution of roles within the metaverse for educators and students, illuminating collaborative efforts to create effective and engaging learning experiences.

Evolving Roles of Educators as Facilitators and Guides

As education seamlessly integrates into the metaverse, the traditional role of educators undergoes a transformative change. The conventional role of teaching evolves, necessitating educators to function more as guides and assistants. In the metaverse, educators are required to adeptly support students in navigating virtual worlds, conducting experiments, and engaging in

interactions within digital environments. Educators are now tasked not only with imparting knowledge but also with guiding students through student-centered approaches, providing positive feedback, and offering continuous support (Herrington et al., 2010; Littlejohn et al., 2014).

Nurturing Digital Literacy and Online Etiquette

As students immerse themselves in virtual environments, educators play a crucial role in developing digital literacy and fostering online etiquette culture. This comprehensive effort includes equipping students with the skills to navigate virtual worlds, establish effective digital communication, and embrace responsible online behaviors. Additionally, educators take on the responsibility of facilitating students in questioning information, making judicious decisions, and enhancing their ability to communicate constructively (Hague & Payton, 2010; Ng, 2012).

Learner Autonomy and Self-directed Learning

The metaverse, equipped with rich resources and tools, offers students unparalleled autonomy in their educational journeys. Empowered by the metaverse, students gain more authority in setting goals, establishing personal objectives, and embarking on self-directed learning journeys. At this point, educators act as guides, providing students with thoughtful guidance, timely feedback, and personalized assistance as needed. The development of this student autonomy nurtures not only immediate skills but also lifelong learning tendencies (Benson & Voller, 2014; Littlejohn et al., 2014).

Alongside these evolving roles, contemporary studies explore the transformation of educators' and students' experiences within the metaverse. For instance, one study demonstrates how virtual reality enhances teacher presence, expanding interaction and feedback realms. Another research conducted by Chen et al. (2018) reveals how virtual reality functions as a catalyst to enhance student autonomy through personalized learning experiences.

Future Prospects and Ethical Considerations

The integration of the metaverse with education not only presents exciting prospects for the future but also entails significant ethical considerations and responsibilities. In this section, the possible impacts of integrating artificial intelligence and machine learning into educational metaverses, the potential effects on traditional educational institutions, and the emphasis on data ethics usage, privacy protection, inclusivity in terms of diversity, and virtual learning spaces are intended to be highlighted.

Integration of AI and Machine Learning in Educational Metaverses

The integration of artificial intelligence and machine learning into educational metaverses holds the potential to provide personalized and adaptive learning experiences. Through the analysis of student data using advanced algorithms, artificial intelligence systems can offer tailored instruction that adapts to learners' individual needs and preferences (Luckin et al., 2016). This could be a significant step in enhancing learner engagement, motivation, and achievement.

Impact on Traditional Educational Institutions

The rise of the metaverse may compel traditional educational institutions to move towards new educational models. As virtual learning environments become more advanced and immersive, students might tend to seek education from online platforms. This situation could drive traditional institutions to become more innovative, adapting to change (Sharples et al., 2016).

Ethical Use of Data and Privacy Preservation

The use of data in educational metaverses requires ethical considerations, particularly concerning privacy and data protection. As students engage in virtual environments, the volume of data generated from their actions and interactions can be used to personalize learning experiences. It is crucial for educators to use this data in accordance with ethical guidelines and transparently, adhering to relevant privacy laws (Prinsloo & Slade, 2017).

Ensuring Diversity and Inclusion in Virtual Learning Spaces

Moving education into the metaverse underscores the importance of ensuring that virtual learning spaces are diverse and inclusive. This involves designing accessible virtual environments for students with different abilities, backgrounds, and experiences. It also emphasizes the necessity of promoting respect and inclusivity within virtual communities, allowing all students to feel valued and supported (Rose et al., 2006).

Roadblocks and Pathways to Overcome Them

The seamless integration of the metaverse with education comes with a set of challenging barriers that require strategic solutions to be realized. These challenges include technological hurdles (Zhang et al., 2022), the necessity of educating educators for effective metaverse integration (Ribeiro, 2021), complex legal and copyright issues (European Innovation Council and SMEs Executive Agency, 2022), and the need for harmonious collaboration among technology companies, educators, and policymakers (Hirsh-Pasek et al., 2022). This section outlines potential avenues to overcome these obstacles.

Overcoming Technological Barriers

The integration of the metaverse with education faces a significant obstacle in the form of technological limitations (Zhang et al., 2022). These challenges encompass issues such as ensuring reliable high-speed internet access and meeting advanced technological requirements for students, such as VR headsets or powerful computers (Zhang et al., 2022). Additionally, harmonizing different metaverse platforms and services through interoperability and standardization poses a crucial challenge. To overcome these obstacles, it is necessary to invest in robust infrastructure and establish universally accepted standards and protocols, creating a consistent metaverse landscape (Zhang et al., 2022).

Training Educators for Metaverse Integration

In the steps taken towards metaverse integration, educators require comprehensive training to understand and effectively utilize this transformation (Ribeiro, 2021). This involves equipping educators with the ability to create and deliver instructional materials in virtual environments (Ribeiro, 2021). Moreover, it is crucial to provide educators with training when transitioning to new pedagogical paradigms based on learner-centered and guidance-oriented approaches. Overcoming this challenge necessitates the implementation of a robust professional development program, enabling educators to acquire the necessary skills and continuous support to thrive (Herrington et al., 2010; Ke & Hoadley, 2009; Ribeiro, 2021).

Addressing Legal and Copyright Issues

The educational applications of the metaverse bring forth a series of legal and copyright issues that require careful consideration (European Innovation Council and SMEs Executive Agency, 2022). In addition to complex topics like virtual asset ownership and usage, there is a necessity to protect student privacy and data. To overcome these intricate challenges, it is essential to establish consistent legal frameworks that define the rights and responsibilities of all stakeholders within the metaverse ecosystem (Sicart, 2014; European Innovation Council and SMEs Executive Agency, 2022).

Collaborative Efforts of Tech Companies, Educators, and Policy Makers

Successful integration of the metaverse with education relies on collaboration among technology companies, educators, and policymakers (Hirsh-Pasek et al., 2022). These collaborative efforts encompass a range of issues, including establishing universal standards, mitigating legal and ethical concerns, and providing an inclusive metaverse environment for diverse students (Hirsh-Pasek et al., 2022). These stakeholders emerge as architects of progress, overcoming obstacles through collaboration and paving the way for seamless integration of the metaverse into the educational environment (Ke & Hoadley, 2009; Hirsh-Pasek et al., 2022).

Current State of Research on Metaverse in Education

Overview of Existing Studies

Virtual Classrooms and Collaboration

The systematic literature review conducted by van der Meer, van der Werf, Brinkman, and Specht (2023) meticulously examined applications of virtual reality in collaborative learning contexts. This review focused on identifying the skills and abilities facilitated by virtual reality, understanding the areas and disciplines it serves, comprehending the underlying systems used, and evaluating the empirical insights gained. The authors' detailed analysis demonstrated that virtual reality is an effective tool for enhancing student engagement and motivation. It also supports distance learning and facilitates remote collaboration. By providing versatile and interdisciplinary spaces, it functions as platforms for both learning and collaborative activities. The review also highlighted virtual reality's contribution to social skills development and its alignment with paradigms and approaches emphasizing collaborative learning.

Hepsiba Darius, Gundabattini, and Solomon (2021) conducted a survey assessing the effectiveness of online teaching and learning methods, specifically targeting university and college students. Through the survey, the researchers identified several key factors contributing to effective online learning. Prominent elements included the integration of animations, opportunities for digital collaboration with peers, video lectures delivered by expert faculty, interactive online quizzes with multiple-choice questions, the provision of a suitable home learning environment, active faculty-student interactions during classes, and the availability of comprehensive online materials provided by teachers. Additionally, an assessment examining the complexity of collaboration among virtual teams made a valuable contribution to the literature.

This review addressed various factors and challenges associated with collaboration efforts in virtual team environments, offering four fundamental design suggestions. These design proposals primarily focus on enhancing and facilitating collaborative tasks within virtual team environments by improving group software.

Skill Acquisition and Simulation-based Learning

McDonald, Davis, and Benson (2021) focused on developing virtual simulations using evidence-based learning theories. This study emphasizes the importance of integrating evidence-based learning principles into technology-enhanced education. The authors provide virtual simulations such as Virtual Home Simulation (VHS) and Virtual Motivational Interview (VMI), allowing child welfare workers to systematically practice essential skills. These virtual simulations equip professionals with necessary skills before they enter their careers. The study shares lessons learned and experiences gained during the development and implementation of these virtual simulations.

A systematic review conducted by Jallad and Işık (2022) delves deeper into this theme, investigating the effectiveness of virtual reality simulation as an instructional and learning

strategy in nursing education. This comprehensive review evaluates its impact on the acquisition of clinical skills, confidence levels, satisfaction, and reduction of anxiety among nursing students. The findings of this review highlight the multifaceted benefits of virtual reality simulation. It is noted as an effective learning strategy that not only aids in the acquisition of core clinical skills but also enhances knowledge acquisition and confidence. Moreover, it raises levels of confidence, self-efficacy, and satisfaction among nursing students. Particularly, the review emphasizes the role of virtual reality simulation in reducing anxiety levels, further underscoring its positive contribution to nursing education.

Cognitive and Motivational Aspects

Noroozi, Pijeira-Díaz, Sobocinski, Dindar, Järvelä, and Kirschner (2020) conducted a systematic literature review in the cognitive and motivational exploration field, extensively examining the interaction of cognitive, motivational, and emotional learning processes with multiple data indicators. The authors aimed to summarize research findings by investigating how different methods could be best used and combined to understand complex learning processes. The study revealed that interviews were the most commonly used modality, followed by surveys and observations. In contrast, modalities such as heart rate variability, facial expression recognition, and screen recording were less frequently utilized. Out of the 207 publications reviewed, 98 focused solely on the cognitive aspects of learning, while 27 were solely motivated. Notably, only five publications comprehensively addressed emotional aspects, highlighting a more exploratory area.

Additionally, a complementary study conducted by Lockl, Attig, Nusser, and Wolter (2021) examined students' cognitive abilities and emotional-motivational factors as potential predictors of how successfully they could navigate the new learning environment imposed by the COVID-19 pandemic. The findings emphasized that students' reading abilities and willingness to make an effort were effective factors when adapting to the new learning scenario at home. Moreover, insights obtained from parents indicated a gender-based difference in motivation levels during this period; males were reported to be more challenging to motivate compared to females. This study contributed to understanding the complex relationship between cognitive abilities, motivation factors, and external challenges in rapidly changing learning environments.

Findings from Research Studies

Enhanced Learning Engagement and Retention

Zhang, Chen, Hu, and Wang (2022) conducted a comprehensive study that thoroughly examines the applications of the metaverse in education. This study explores the definition, framework, features, potential applications, challenges, and future research topics of the metaverse. The authors provide a detailed framework for the applications of the metaverse in education and delve into potential applications such as blended learning, language learning, competency-based education, and inclusive education. They also present the challenges faced by educational metaverse applications. Finally, they propose a series of topics for future research related to the applications of the metaverse in education. This study offers a valuable roadmap to understand the role of the metaverse in education and provides insightful guidelines for future research.

Another study conducted by Lee and Hwang (2022) takes a step into the realm of technology-enhanced education. This study specifically focuses on how Virtual Reality (VR) content creation and metaverse usage can be combined to enhance teacher preparation and sustainable learning practices. The researchers examine the experiences of pre-service English teachers who participated in designing instructional VR content for K-12 English digital

textbooks. They interestingly explore the connection between creating VR content and metaverse integration in their research. The findings of this study emphasize the transformative potential of VR content creation, conveying the capacity to enhance pre-service teachers' technological readiness, encourage critical thinking, creativity, collaboration, communication skills within digital citizenship, and convey perceived pedagogical benefits. This research paves the way for utilizing technology and interactive experiences to enhance effective educators and enriched learning environments.

Improved Problem-Solving Abilities

A significant study conducted by Klang, Karlsson, Kilborn, Eriksson, and Karlberg (2021) examined the impact of a collaborative learning approach on mathematical problem-solving abilities. This research aimed to enhance the mathematical problem-solving skills of fifth-grade students in heterogeneous classroom settings. Researchers adopted a collaborative learning approach focusing on problem-solving strategies involving mathematical models such as multiplication/division, proportion, and geometry. The results of this study demonstrated substantial effects of the intervention on overall problem-solving abilities and problem-solving skills in the field of geometry. Moreover, students with high social acceptance and friendship scores achieved higher scores in mathematical problem-solving tests. Hence, the collaborative learning approach can enhance mathematical problem-solving abilities in heterogeneous classrooms, while social acceptance and friendships can significantly influence students' outcomes.

Similarly, Mahanal, Zubaidah, Setiawan, Maghfiroh, and Muhaimin (2022), following a similar approach, investigated the effectiveness of the RICOSRE learning model in enhancing students' problem-solving abilities across different academic performance groups. The findings indicated the potential of this model to significantly improve problem-solving skills in high, moderate, and low academic groups. Particularly noteworthy was the substantial increase of 141.17% in problem-solving abilities recorded in the lowest academic group. The results of this study emphasize the promising impact of innovative learning models in supporting problem-solving abilities, especially for students facing academic challenges.

Challenges in Maintaining Focus and Presence

The concepts of focus and presence have been the focal point of a study conducted by Rapanta, Botturi, Goodyear, Guàrdia, and Koole (2020), exploring the effects of these concepts under challenging conditions. This research examined the challenges posed by the global higher education community by the Covid-19 pandemic, particularly addressing the difficulties created by the rapid and unexpected transition of traditional face-to-face university classes to online platforms. This sudden shift posed significant obstacles, especially for non-expert university instructors with limited experience in online teaching. The study aims to guide educators unfamiliar with the intricacies of the digital learning landscape during this unique period by providing pedagogical content knowledge (PCK) necessary for effective online learning.

On the other hand, Aczel, Kovacs, van der Lippe, and Szaszi (2021) conducted research to examine the challenges faced in work productivity during the lockdown period caused by the pandemic. This study sheds light on the different effects of the lockdown on researchers' productivity. Approximately half of the researchers experienced a decrease in productivity, while about a quarter reported increased productivity during the lockdown period compared to the pre-lockdown period. A significant finding derived from personal experiences is that about 70% of the researchers believe they can maintain or even enhance their productivity if given more opportunities for remote work in the future. This study emphasizes the impact of external factors on researchers' productivity and provides insights into the potential of a hybrid work model in the future.

These two studies illuminate the challenges posed by unexpected situations, offering insights that can guide individuals, educators, and researchers in sustaining productivity and effectiveness.

Gaps in the Literature

Long-term Effects of Metaverse Learning

In the current research literature, notable gaps exist concerning the long-term effects of metaverse learning. Despite the increasing interest in the impact of virtual platforms on teacher candidates' competencies, presence, and perceptions, a significant gap remains, especially in addressing differences between high and low-achieving teacher candidates (Klein, 2022). The understanding of the enduring consequences of metaverse learning in teacher education has not been adequately explored. Research addressing this gap could shed light on the effectiveness and sustainability of these learning approaches.

Existing studies emphasize the potential of adaptive e-learning based on learning styles. However, there are gaps in how these systems should be effectively designed, how their impact in educational contexts can be enhanced, and how their cost-effectiveness can be optimized (Duan et al., 2021). Addressing these gaps could contribute not only to improving the design of personalized learning experiences but also to the development of more effective and engaging educational approaches.

Learning styles of online learners, such as visual, auditory, holistic, and sequential learners, have not been sufficiently explored in the context of online courses (Anderson & Rainie, 2022). Research on the impact of different learning styles on online learning outcomes, participation, and satisfaction is lacking. Filling this gap could facilitate the development of more personalized online learning experiences tailored to various learner profiles.

While the potential applications and challenges of metaverse learning have been discussed, there is a research gap regarding its long-term effects. For example, Zhang and colleagues' (2022) study provides a comprehensive framework to understand the role of the metaverse in education but does not delve deeply into the lasting effects of metaverse-based learning. Similarly, studies like Li and Yu's (2023) suggest that metaverse technologies can enhance language learning but lack addressing challenges like digital literacy and maximizing the effectiveness of metaverse learning environments.

Comparative Studies with Traditional Teaching Methods

In today's context, the comparison of modern educational methods with traditional approaches has provided valuable insights into the advantages and disadvantages of preferred methods in education. In this regard, Wang (2022) conducted a comprehensive synthesis of the existing literature, presenting a comparative analysis. Throughout this analysis, it was noted that modern educational methods generally offer greater advantages. However, the study also emphasized the necessity for teachers to consider student conditions, teaching objectives, and potential challenges when choosing an appropriate teaching method. This highlights the importance of making pedagogical decisions on a conscious and context-sensitive basis.

On the other hand, Jin and colleagues (2021) examined how traditional teaching methods were adapted to e-learning platforms following the Covid-19 pandemic. This study particularly focused on the perspective of Chinese students. The research investigated the transition process from offline to online learning based on the Push-Pull-Mooring model. Factors such as perceived security risk, ease of learning, service quality, usability, user-friendliness, teacher's teaching attitude, task-technology fit, and habit played significant roles in this transition

process. This study contributes to understanding the factors influencing the adoption of e-learning platforms.

These comparative studies provide in-depth insights into the complex decision-making processes between traditional and modern teaching methods and the processes of adapting to online learning environments. Addressing existing research gaps such as metaverse learning, adaptive e-learning design, and learning styles in online classes will further enrich educational research.

Impact on Different Age Groups and Learning Styles

Studies investigating the impact of virtual platforms on various age groups and learning styles can offer valuable insights into personalizing educational approaches. Research on the effects of state-of-the-art virtual platforms on teacher candidates' competency, lesson planning, perceived presence, and perceptions, especially in the context of high and low-achieving teacher candidates, requires further examination (Chen, 2023). Understanding how these platforms cater to different levels of achievement and individual learning styles can guide targeted instructional strategies.

Additionally, the development and effective implementation of foundational design for adaptive e-learning based on learning styles emerge as a critical area requiring attention (El-Sabagh, 2021). Studies that not only explore the design principles of adaptive e-learning but also investigate effective integration and implementation strategies, considering cost-effectiveness, can significantly contribute to optimizing personalized learning experiences.

Furthermore, delving deeply into the different learning styles of online learners, such as visual, auditory, holistic, and sequential learners, within online classes creates a valuable research area (Hu et al., 2021). Understanding how these learning styles interact with online learning environments can guide the development of instructional content, assessments, and interaction strategies that are compatible with diverse learners.

Incorporating these perspectives into the expanded discourse of educational technology can help us better understand how virtual platforms address various student needs and how adaptive approaches can be effectively integrated and optimized. Addressing these research gaps will lead to more inclusive and effective educational practices.

Future Research Directions

Exploring Metaverse-enabled Social Constructivism

Future research can focus on a comprehensive examination of metaverse-supported social constructivism. Investigating the impact of virtual platforms on prospective teachers' lesson planning abilities, perceived presence, and perceptions, especially considering variations in achievement levels, offers a promising direction in understanding how these platforms contribute to the teacher education process (Zhang et al., 2022). Exploring how high and low-achieving teacher candidates interact with metaverse-supported learning environments and benefit from these environments can provide valuable insights into the potential for equitable learning outcomes.

Developing adaptive e-learning is a priority. This may involve establishing a strong foundation, integrating learning styles into the architecture, and implementing strategies that enhance effectiveness while maintaining cost-efficiency (Hennig-Thurau et al., 2023). Investigating how adaptive e-learning models effectively serve different learning styles and optimizing the integration of these models into educational systems can contribute to creating more personalized and effective learning experiences.

Additionally, researching different learning styles of online learners, such as visual, auditory, holistic, and sequential learning styles, in online classes is a future research area (Suh & Ahn, 2022). Examining how these learning styles interact with various elements such as content delivery, assessment strategies, and participation techniques in online classes can assist in designing more customized and effective online learning experiences.

Future research directions will not only contribute to the theoretical understanding of educational technology but also offer practical strategies on how teaching and learning processes can be optimized in different contexts. With this focus, researchers will shed light on future developments in the field of educational technology by introducing new approaches and recommendations for developing more inclusive, interactive, and effective educational practices.

-Assessing the Role of the Metaverse in Enhancing Soft Skills

The term "Metaverse" refers to a virtual space that facilitates shared interactions among users, holding the potential for developing critical soft skills such as communication, collaboration, and problem-solving (Zhang, Chen, Hu, & Wang, 2022). This virtual space provides a secure environment where these fundamental skills can be honed.

Among the future research directions, a detailed exploration of how virtual interactions within the Metaverse can be utilized to enhance these soft skills stands out. Specifically, virtual activities like team-building exercises and in-depth role-playing scenarios should be thoroughly evaluated to understand how they contribute to the improvement of users' communication and collaboration abilities.

Additionally, one of the perspectives for future research involves examining how the Metaverse can function as a tool for personalized education and constructive feedback. This approach may include the development of artificial intelligence-based virtual education programs that can be designed to adapt dynamically to individual learning needs. These programs could encourage personalized skill development by providing users with instant feedback on their performance (Chang et al., 2022).

- Exploring Multicultural and Inclusive Education in Virtual Spaces

In recent times, discussions on multicultural and inclusive education have garnered significant interest in virtual spaces. Virtual environments, especially platforms like the Metaverse, provide a unique platform to support multicultural and inclusive education by enabling shared interactions among diverse individuals. Among the future research areas, there is a need to examine how virtual interactions can promote cultural understanding and inclusivity. In this context, an intriguing approach involves researching how virtual scenarios that allow role-playing or collaboration projects can enhance users' cultural competence. This approach can shed light on the potential of virtual interactions to transcend cultural boundaries and create empathetic connections (Thomas, 2020).

Additionally, a noteworthy research direction pertains to the design of virtual environments conducive to multicultural and inclusive education. Academics can explore strategies, particularly for enhancing the accessibility and inclusivity of virtual environments, especially for individuals with disabilities. Furthermore, examining how virtual environments can be used to support gender equality in the field of education is seen as an important research orientation. This approach could offer new perspectives on promoting diversity and inclusivity (Lampropoulos et al., 2022).

Conclusion

In this section, the transformative potential of the metaverse in the field of education has been reconsidered. A proactive approach to preserving ethical and inclusive principles in adopting innovations has been advocated, while contemplating the role of shaping the future of learning.

Recap of the Transformative Potential of the Metaverse in Education

Throughout this chapter, we explored various ways in which the metaverse could fundamentally transform education. From immersive virtual classrooms transcending geographical boundaries to experiential learning scenarios that bring abstract concepts to life, the metaverse offers a rich spectrum of possibilities. The integration of augmented and virtual realities, combined with real-time collaboration tools, can profoundly impact students in unprecedented ways. By providing dynamic and interactive learning environments, the metaverse can encourage the deeper understanding and learning of complex subjects by accommodating different learning styles (Baker, 2022).

Reflection on the Metaverse's Role in Shaping the Future of Learning

Looking ahead, it is evident that the metaverse will play a fundamental role in the evolution of education. Traditional teaching models are making room for more dynamic and personalized approaches. Students will not only consume content but also actively engage in shaping their own knowledge through experiential learning. The metaverse has the potential to democratize education, making high-quality learning accessible regardless of geographical locations or socioeconomic backgrounds. In alignment with the demands of the 21st century, adaptability, digital literacy, and collaboration become crucial (Baker, 2022).

-Call to Action for Embracing Innovation while Ensuring Ethical and Inclusive Practices

As educators, administrators, and stakeholders, we stand at a critical juncture. The metaverse presents exciting opportunities, but its successful integration requires careful consideration of ethical and inclusive principles. We must ensure that accessibility remains a cornerstone of educational metaverse experiences, catering to learners with disabilities and varying needs. Moreover, issues related to data privacy, security, and digital citizenship demand our attention. By fostering a culture of responsible innovation, we can harness the metaverse's potential without compromising on core values.

In conclusion, the metaverse's entrance into education signifies a paradigm shift—one that empowers learners and redefines the boundaries of traditional classrooms. The journey ahead involves collaborative efforts to refine its implementation, share best practices, and learn from both successes and challenges. By embracing the metaverse thoughtfully and inclusively, we can chart a course towards a more engaging, effective, and equitable education landscape. The future of learning is here, and it's up to us to navigate it with wisdom and foresight.

REFERENCES

Aczel, B., Kovacs, M., Van Der Lippe, T., & Szaszi, B. (2021). Researchers working from home: Benefits and challenges. PloS one, 16(3), e0249127.

Akyildiz, I. F., Su, W., Sankarasubramaniam, Y., & Cayirci, E. (2002). Wireless sensor networks: a survey. Computer networks, 38(4), 393-422.

Alfaisal R., Hashim H., & Azizan U.H. (2022). Metaverse system adoption in education: a systematic literature review. Journal of Computers in Education.

Anderson, J., & Rainie, L. (2022). The metaverse in 2040. Pew Research Centre, 30.

Atzori, L., Iera, A., & Morabito, G. (2010). The internet of things: A survey. Computer networks, 54(15), 2787-2805.

Bailenson, J. N., Yee, N., Blascovich, J., Beall, A. C., Lundblad, N., & Jin, M. (2018). The use of immersive virtual reality in the learning sciences: Digital transformations of teachers, students, and social context. Journal of the Learning Sciences, 17(1), 102-141.

Baker K.R. (2022). Designing an Inclusive Metaverse. Harvard Business Review.

Champion E.(2015). Critical Gaming: Interactive History and Virtual Heritage. Routledge.

Chang, L., Zhang, Z., Li, P., Xi, S., Guo, W., Shen, Y., ... & Wu, Y. (2022). 6G-enabled edge AI for Metaverse: Challenges, methods, and future research directions. Journal of Communications and Information Networks, 7(2), 107-121.

Chen, H. J. (2023). Gather in the metaverse: Learning outcomes, virtual presence, and perceptions of high- and low-achieving pre-service teachers of English as a Foreign Language. Educational Information Technology. Advance online publication. https://doi.org/10.1007/s10639-023-12135-3

Chen C.-M., Wang J.-Y., & Yu S.-C. (2018). Effects of augmented reality-based multidimensional concept maps on students' learning achievement, motivation, and acceptance. Interactive Learning Environments, 26(4), 485–498.

Dalgarno B.& Lee M.J.(2010). What are the learning affordances of 3-D virtual environments? British Journal of Educational Technology, 41(1), 10–32.

Darius, P. S. H., Gundabattini, E., & Solomon, D. G. (2021). A survey on the effectiveness of online teaching–learning methods for university and college students. Journal of The Institution of Engineers (India): Series B, 102(6), 1325-1334.

De Felice F., Petrillo A., Iovine G., Salzano C., & Baffo I. (2023). How Does the Metaverse Shape Education? A Systematic Literature Review. Applied Sciences.

Duan, H., Li, J., Fan, S., Lin, Z., Wu, X., & Cai, W. (2021, October). Metaverse for social good: A university campus prototype. In Proceedings of the 29th ACM international conference on multimedia (pp. 153-161).

Dunleavy M., Dede C., & Mitchell R.(2009). Affordances and limitations of immersive participatory augmented reality simulations for teaching and learning. Journal of Science Education and Technology, 18(1), 7–22.

El-Sabagh, H. A. (2021). Adaptive e-learning environment based on learning styles and its impact on development students' engagement. International Journal of Educational Technology in Higher Education, 18(1), 1-24.

European Innovation Council and SMEs Executive Agency. (2022). Intellectual Property in the Metaverse. Episode IV: Copyright.

Hague C.& Payton S. (2010). Digital literacy across the curriculum. Futurelab.

Hennig-Thurau, T., Aliman, D. N., Herting, A. M., Cziehso, G. P., Linder, M., & Kübler, R. V. (2023). Social interactions in the metaverse: Framework, initial evidence, and research roadmap. Journal of the Academy of Marketing Science, 51(4), 889-913.

Herrington J., Reeves T.C., & Oliver R. (2010). A guide to authentic e-learning. Routledge.

Hu, J., Peng, Y., Chen, X., & Yu, H. (2021). Differentiating the learning styles of college students in different disciplines in a college English blended learning setting. PLoS One, 16(5), e0251545.

Huang H.-M., Rauch U., & Liaw S.-S.(2010). Investigating learners' attitudes toward virtual reality learning environments: Based on a constructivist approach. Computers & Education, 55(3), 1171–1182.

Jallad, S. T., & Işık, B. (2022). The effectiveness of virtual reality simulation as learning strategy in the acquisition of medical skills in nursing education: a systematic review. Irish Journal of Medical Science, 191, 1407–14262

Jauhiainen, J. S., Krohn, C., & Junnila, J. (2022). Metaverse and Sustainability: Systematic Review of Scientific Publications until 2022 and Beyond. Sustainability, 15(1), 346.

Jensen L.& Konradsen F.(2018). A review of the use of virtual reality head-mounted displays in education and training. Education and Information Technologies, 23(4), 1515–1529.

Jin, Y. Q., Lin, C. L., Zhao, Q., Yu, S. W., & Su, Y. S. (2021). A study on traditional teaching method transferring to E-learning under the COVID-19 pandemic: From Chinese students' perspectives. Frontiers in Psychology, 12, 632787.

Kapp K.M.(2012). The Gamification of Learning and Instruction: Game-based Methods and Strategies for Training and Education. Pfeiffer.

Ke F.& Hoadley C. (2009). Evaluating online learning communities. Educational Technology Research and Development, 57(4), 487–510.

Kirschner F., Paas F., & Kirschner P.A.(2009). A cognitive load approach to collaborative learning: United brains for complex tasks. Educational Psychology Review, 21(1), 31–42.

Klang, N., Karlsson, N., Kilborn, W., Eriksson, P., & Karlberg, M. (2021, August). Mathematical problem-solving through cooperative learning—the importance of peer acceptance and friendships. In Frontiers in Education (Vol. 6, p. 710296). Frontiers.

Klein, S. (2022). Teaching and Learning in the Metaverse. Technology and the Curriculum: Summer 2022.

Lampropoulos, G., Keramopoulos, E., Diamantaras, K., & Evangelidis, G. (2022). Augmented reality and gamification in education: A systematic literature review of research, applications, and empirical studies. Applied Sciences, 12(13), 6809.

Lee, H., & Hwang, Y. (2022). Technology-enhanced education through VR-making and metaverse-linking to foster teacher readiness and sustainable learning. Sustainability, 14(8), 4786.

Li, M., & Yu, Z. (2023). A systematic review on the metaverse-based blended English learning. Frontiers in Psychology, 13, 1087508.

Littlejohn A., Hood N., Milligan C., & Mustain P. (2014). Learning in MOOCs: Motivations and self-regulated learning in MOOCs. The Internet and Higher Education, 29, 40–48.

Lockl, K., Attig, M., Nusser, L., & Wolter, I. (2021). Cognitive and affective-motivational factors as predictors of students' home learning during the school lockdown. Frontiers in psychology, 12, 751120.

Luckin R., Holmes W., Griffiths M., & Forcier L.B.(2016). Intelligence unleashed: An argument for AI in education. Pearson.

Mahanal, S., Zubaidah, S., Setiawan, D., Maghfiroh, H., & Muhaimin, F. G. (2022). Empowering college students' problem-solving skills through RICOSRE. Education Sciences, 12(3), 196.

Makransky G., Terkildsen T.S., & Mayer R.E.(2019). Adding immersive virtual reality to a science lab simulation causes more presence but less learning. Learning and Instruction, 60, 225–236.

McDonald, C., Davis, M., & Benson, C. (2021). Using Evidence-Based Learning Theories to Guide the Development of Virtual Simulations. Clinical Social Work Journal, 49, 197–2061

Merrill M.D.(2002). First principles of instruction. Educational Technology Research and Development, 50(3), 43–59.

Mikropoulos T.A.& Natsis A.(2011). Educational virtual environments: A ten-year review of empirical research (1999–2009). Computers & Education, 56(3), 769–780.

Milgram, P., & Kishino, F. (1994). A taxonomy of mixed reality visual displays. IEICE TRANSACTIONS on Information and Systems, 77(12), 1321-1329.

Morrison-Smith, S., & Ruiz, J. (2020). Challenges and barriers in virtual teams: a literature review. SN Applied Sciences, 2, 1-33.

Ng W. (2012). Can we teach digital natives digital literacy? Computers & Education, 59(3), 1065–1078.

Noroozi, O., Pijeira-Díaz, H. J., Sobocinski, M., Dindar, M., Järvelä, S., & Kirschner, P. A. (2020). Multimodal data indicators for capturing cognitive, motivational, and emotional learning processes: A systematic literature review. Education and Information Technologies, 25(5), 5499–5547

Pellegrino J.W., Chudowsky N., & Glaser R.(2001). Knowing what students know: The science and design of educational assessment. National Academy Press.

Peterson M.(2010). Massively multiplayer online role-playing games as arenas for second language learning. Computer Assisted Language Learning, 23(5), 429–439.

Prinsloo P.& Slade S.(2017). Big data, higher education and learning analytics: Beyond justice, towards an ethics of care. In B.K.Daniel (Ed.), Big data and learning analytics in higher education: Current theory and practice (pp. 109–124). Springer.

Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L., & Koole, M. (2020). Online university teaching during and after the Covid-19 crisis: Refocusing teacher presence and learning activity. Postdigital science and education, 2, 923-945.

Ribeiro, R. (2021). 'Metaverse' and the educational potential. Cambridge English.

Rose D.H., Harbour W.S., Johnston C.S., Daley S.G., & Abarbanell L.(2006). Universal design for learning in postsecondary education: Reflections on principles and their application. Journal of Postsecondary Education and Disability, 19(2), 135–151.

Roussou M., Oliver M., & Slater M.(2006). The virtual playground: An educational virtual reality environment for evaluating interactivity and conceptual learning. Virtual Reality, 10(3–4), 227–240.

Sharples M., de Roock R., Ferguson R., Gaved M., Herodotou C., Koh E., Kukulska-Hulme A., Looi C.-K., McAndrew P., Rienties B., Weller M., & Wong L.H.(2016). Innovating pedagogy 2016: Open University innovation report 5. The Open University.

Sicart M. (2014). Play matters. MIT Press.

Suh, W., & Ahn, S. (2022). Utilizing the metaverse for learner-centered constructivist education in the post-pandemic era: An analysis of elementary school students. Journal of Intelligence, 10(1), 17.

Thomas, M. B. (2020). Virtual teaching in the time of COVID-19: Rethinking our WEIRD pedagogical commitments to teacher education. In Frontiers in Education (Vol. 5, p. 595574). Frontiers Media SA.

van der Meer, N., van der Werf, V., Brinkman, W. P., & Specht, M. (2023). Virtual reality and collaborative learning: A systematic literature review. Frontiers in Virtual Reality, 4, 1159905.

Wang, Y. (2022). A comparative study on the effectiveness of traditional and modern teaching methods. In 2022 5th International Conference on Humanities Education and Social Sciences (ICHESS 2022) (pp. 270-277). Atlantis Press.

Warschauer M.& Ames M.(2010). Can One Laptop per Child Save the World's Poor? Journal of International Affairs, 64(1), 33–51.

Zhang, X., Chen, Y., Hu, L., & Wang, Y. (2022). The metaverse in education: Definition, framework, features, potential applications, challenges, and future research topics. Frontiers in Psychology, 13, 6063.

The Effects of Tourism Revenues, Real Effective Exchange Rate, Inflation, and Industrial Production on Housing Prices: Empirical Evidence from Turkey

Orhan ŞANLI[1]

Introduction

This study investigates the impact of tourism revenues (TI) on housing prices (HP) under the shadow of the real effective exchange rate (REX), consumer price index (CPI), and industrial production index (IPI) in Turkey. The analysis of the study consists of quarterly data and covers the period from 2010: Q1 to 2023: Q2. In this study, the long-term model was estimated using the Quantile Regression (QR) method. Additionally, robustness analysis was conducted using Ordinary least squares (OLS), Fully modified ordinary least squares (FMOLS), and Dynamic ordinary least squares (DOLS) techniques. According to four methods, empirical results indicate that tourism revenues have a significant impact on housing prices in Turkey. Accordingly, the increase in TI positively affects housing prices in Turkey in the long run. REX affects this positive relationship between TI and HP. In this study, the effect of REX on HP is negative. A decrease in REX causes goods and services to become relatively cheaper compared to the foreign market. In this case, there will be additional increases in foreign demand for tourism services and the real estate sector in Turkey. On the other hand, the decrease in REX also leads to an increase in import costs. As a result of this situation, demand and cost pressures on housing prices increase. This result provides strong evidence that housing demand in Turkey is seen as a tool for protection against inflation. The effect of IPI on HP is insignificant. As a result, the effects of TI, REX, and CPI on HP indicate that cost and demand inflation are effective together in the increase in housing prices in Turkey.

The tourism sector has grown rapidly globally in the last 30 years. As a result of these developments in tourism, the impact and importance of tourism revenues on the economy entered the field of study of economists (Sequeira, 2008; Pablo-Romero and Molina, 2013; Brida et al., 2022). Tourism expenditures began to be accepted as an export area that provides employment, creates taxes, and contributes to closing the current account deficit (Belisse and Hoy, 1980; Uysal and Gitelson, 1994; Archer, 1995; Durbarry, 2004). Additionally, the tourism industry promotes many sectors such as transportation, retail, and accommodation (Mayer and Vogt, 2016). According to the results of studies drawing attention to this issue in the literature (Marin, 1992; Durbarry, 2004; Fayissa et al., 2008; Narayan et al., 2010; Balsalobre-Lorente et al., 2021; Brida et al., 2022; Bekun et al., 2022; Wu et al., 2023), tourism revenues positively affect economic growth through various channels. Balaguer and Cantavella (2002) is among the first studies examining the tourism-based growth hypothesis. In this regard, it can be said that the tourism sector plays a key role in the sustainable development process (Malik et al., 2010; Wakimin, et al., 2018; Hwang and LE, 2019).

[1] Aydın Adnan Menderes Üniversitesi Nazilli İktisadi ve İdari Bilimler Fakültesi, İktisat Bölümü, e mail: orhan.sanli@adu.edu.tr, ORCİD: 0000-0002-3366-8993

Many countries in the world have started to open their doors to the tourism sector in this direction. The tourism sector has a significant contribution to closing the balance of payments deficits and improving living conditions, especially in developing countries (Paramati et al., 2017; Liu and Song, 2017). Because the tourism sector is a vital source for closing the current account deficit through foreign exchange inflow and growth. Thus, touristic activities provide foreign exchange input to finance imported capital goods that are necessary for the growth of a country (Malik et al., 2010).

Another area that is affected by the tourism sector and has an important place in the literature in recent years is the housing sector. In countries that host millions of tourists throughout the year, housing comes first among the requirements for touristic infrastructure. In this regard, the tourism and housing sectors have become a popular field of study in the economics and tourism literatüre (Biagi et al., 2012; Biagi et al., 2015; Wu et al., 2019; Liu et al., 2020; Yu et al., 2021; Cunha and Lebao, 2022; Wu et al., 2022; Cong et al., 2023; Cro and Martins; 2023). Studies examining the relationship between the tourism sector and housing markets are quite new. The results of studies (Biagi et al., 2015; Paramati and Roca, 2019; Wu et al., 2019; Yıldırım and Karul, 2022; Churchill et al., 2022; Song et al., 2023; Cro and Martinns, Wu et al., 2023) on the relationship between tourism and housing prices reveal that tourism activities have a significant impact on housing prices. Because there are many problems in the housing sector in developing countries with foreign exchange deficits. In addition, tourist activities cause upward pressure on housing prices where housing is not sufficient. For this reason, the impact of touristic activities on costly and inadequate housing prices, especially in developing countries, is an important field of study. Therefore, this study examines this issue, which is quite new in the literature, from the perspective of Turkish housing markets.

Turkey is one of the leading countries in the world in the tourism sector. So much so that, according to UNWTO (2023), Turkey became the fourth country hosting the most tourists in the world in 2022. In the same year, Turkey earned 41 billion dollars of tourism income and rose to seventh place in the world in terms of tourism income. However, while Turkey continues to develop its tourism sector, it is also trying to cope with increasing housing prices. After 2010, a new wave of migration to Turkey started due to the Arab Spring and Syrian events in the Middle East. The total number of refugees has reached 4 million (UNHCR, 2023). Thus, the cumulative total population in Turkey reaches 140 million during the year, including 86 million local population, 4 million refugee population, and 52 million tourists. Therefore, increases in production costs resulting from exchange rate shocks, as well as domestic and external demand for the housing sector, led to bidirectional (demand inflation and cost inflation) pressure on housing prices. Because foreign demand resulting from touristic activities driven by exchange rate fluctuations affects prices in the housing sector, which is inadequate in Turkey. Yang et al., (2023) stated that there are two reasons why tourist activities put upward pressure on housing prices. Firstly, since production in the housing sector is slow, accommodation opportunities provided to tourists increase housing demand and housing prices in the country. The second is that housing prices increase in regions where housing demand from wealthy tourists increases and becomes expensive for locals (Yang et al., 2023).

This study investigates the effect of tourism revenues on housing prices based on the inverse demand approach. In this regard, the country examined in the study is Turkey, one of the most important tourism destinations in the world. This study provides evidence that increases in housing prices in Turkey are not only due to domestic factors but also to the tourism sector, which welcomes more than 50 million foreign visitors annually. However, there are very few studies (Yıldırım and Karul, 2021) on the relationship between housing prices and tourism revenues in Turkey. Studies on Turkey focus on the housing demand of foreigners. in Turkey Tourism revenues are closely related to real effective exchange rates, which affect domestic

and foreign demand. Because sudden shocks in nominal exchange rates trigger cost inflation. As a result of this situation, demand is expected to decrease by the law of demand. However, as seen in some empirical studies (Öztürk and Fitöz, 2009; Süleymanlı, 2019; Şanlı and Peker, 2023), inflation shocks triggered by exchange rates in Turkey trigger housing demand. Consumers with excess funds increase their demand for housing against inflation losses during high inflation periods. In other words, it is understood that domestic consumers accept housing as an investment and a method of protection from inflation. This situation increases housing prices due to the lack of sufficient housing supply. Another area affected by exchange rate shocks is foreign demand for the housing sector. In Turkey, nominal exchange rates increased more than 15 times after 2010, while REX decreased by approximately 60%. Sudden exchange rate shocks cause an increase in foreign demand for domestic goods and services, especially the tourism sector. Increases in foreign demand, on the one hand, positively affect tourism revenues, and on the other hand, trigger housing prices. In addition, the decrease in REX triggers an increase in foreign demand in the housing sector in Turkey. In this regard, according to TUIK (2023) data, the houses sold to foreigners between the 2013-2022 periods increased fivefold and approached 68 thousand annually. Thus, housing sales to foreigners in December 2021 reached the highest level in Türkiye's history. In parallel with the extreme increases in exchange rates, CPI, and housing sales to foreigners, housing prices increased approximately 20 times between 2010 and 2023. Therefore, this study aims to investigate the effect of tourism revenues on the increases in housing prices in Turkey under the shadow of the real effective exchange rate, CPI, and industrial production index. The study provides an example of time series analysis for the periods 2010: Q1- 2023: Q2. For this purpose, the quantile regression method was applied. Additionally, robustness analysis was performed using OLS, FMOLS, and DOLS methods. Other parts of the article proceed as follows; Literature Review, Data, Model and Method, Empirical Results and Conclusion, and Policy RecommendationsLiterature Review

The relationship between tourism revenues and housing prices has begun to attract attention in recent years, and this topic is quite new. Therefore, there are not enough studies in the literature covering Türkiye or other regions on this subject. In addition, it is understood that the effect of REX on HP has not been studied sufficiently in previous studies examining the relationship between tourism and housing. Whereas REX has a significant effect on TI, CPI, IPI, and HP. REX shows the price of goods and services produced in Turkey in the foreign market. For example, a decrease in real effective exchange rates causes Turkish goods and services to become relatively cheaper in the foreign market. Thus, the price of tourism services in the foreign market decreases, and tourism demand increases. This situation increases tourism investments and housing demand. There are two reasons why housing demand increases (Yang et al., 2023). The first reason is the increasing demand for housing required for new tourism investments. The second reason is due to the increasing demand for cheap housing by wealthy tourists traveling to the country. Therefore, REX has been accepted as an important variable determining HP. This study, unlike other studies in the literature, investigates the effects of TI, REX, CPI, and IPI on HP. Figure 1 shows the variation of TI, REX, CPI, and HP over time. It has been observed that TI, CPI, REX, and HP have moved together in the last 14 years. This situation gives some clues that HP may have a positive correlation with TI and CP, while HP may have a negative correlation with REX. The expectations for the analysis results of this study are also in this direction. Because, as seen in Figure 1, while HP has been increasing steadily since 2010, TI and CPI are also in an increasing trend. In the same periods, REX has been decreasing steadily due to the effect of nominal exchange rate increases.

Figure 1: Time Series of TI, REX, CPI and HP (Natural logarithm of all variables)
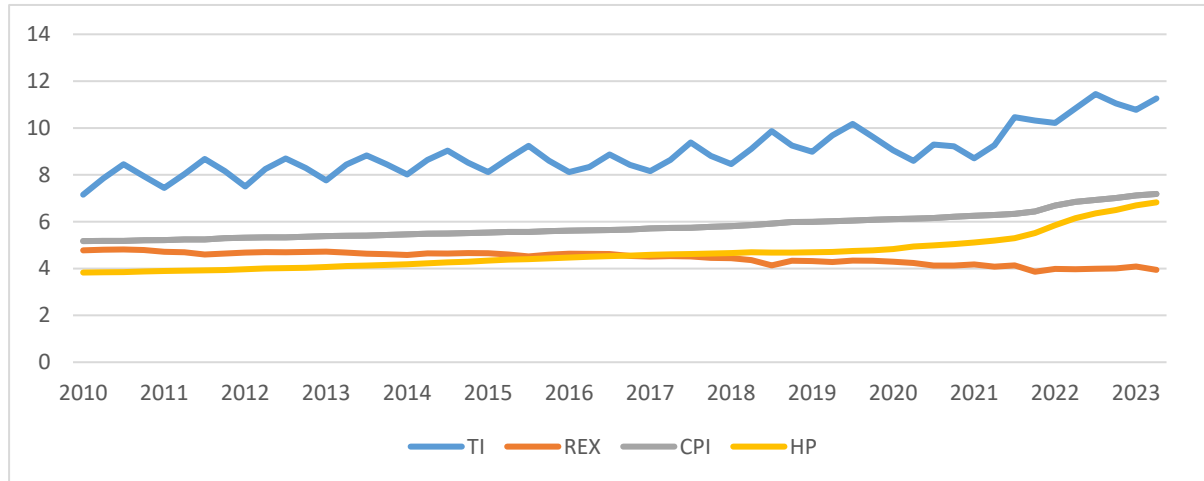
Source: Made by the author using TUIK (2023) data.

2.1. Tourism Revenues and Housing Prices

Yang et al., (2023) investigated the relationship between tourism revenues and housing prices in G7 countries using the panel smooth transition regression (PSTR) technique. According to the results of the study, at the high threshold of economic growth, tourism revenues and the number of tourists increase housing prices. However, in low threshold periods of economic growth, tourism revenues and the number of tourists negatively affect housing prices. 2.1. Tourism Revenues and Housing Prices

Peric et al., (2022) investigated the effect of tourism revenues and the number of tourists on housing prices in 27 EU countries using the GMM technique. Tourism revenues and the number of tourists positively affect housing prices in the EU. Paramati and Roca (2019) examined the impact of tourism revenues on housing prices in OECD countries using the Augmented Mean Group (AMG) method. According to the results of the study, tourism revenues positively affect housing prices. Wu et al., (2019) investigated the effect of tourist activities on housing prices in various regions of China using the Granger causality method. Empirical results indicate that there is a unidirectional and positive relationship between tourism activities and housing prices. Biagi et al., (2015) examined the relationship between tourism activities and housing prices in different cities of Italy using the class model. The analysis results indicate that touristic activities increase housing prices in some regions but decrease housing prices in others.

Alola et al., (2019) examined the relationship between the number of tourists and housing prices in Cyprus using the ARDL method. According to the long-term results of the study, the number of tourists positively affects housing prices. Yıldırım et al., (2022) examined the effect of the number of tourists on housing prices in Turkey using the Fourier method. The long-term results of the study indicate that tourism activities increase housing prices. Cro and Martins (2023) examined the impact of tourism revenues on housing prices in tourism-dependent countries using OLS and VECM methods. The results of the study indicate that tourism

revenues increase housing prices in all regions in the long run. Cong et al., (2023) investigated the effect of tourist activities on housing prices in some regions of China using the entropy method. According to the results of the study, tourist developments affect housing prices. Liu et al., (200) investigated the effect of tourist activities on housing prices in Hainan, China. According to the results of the study, the effect of tourism activities on housing prices is different and tourism has a driving force on average housing prices.

2.1. Industrial Production Index, Exchange Rates, CPI, and Housing Prices.

House prices and house sales are generally determined by macro variables such as production, population, inflation, exchange rate, credit opportunities, and interest rates. There are many studies on this subject in the literature. The methods, models, and results of these studies are partly different from each other. However, studies generally indicate that inflation, exchange rate, interest rate, and population increase housing prices and decrease housing sales. Economic growth, industrial production, and credit expansion are expected to positively affect housing supply and housing demand. In this case, house prices change depending on the elasticity of supply and demand.

Bahrami and Wu (2018) investigated the relationship between REX and HP in OECD countries using the Granger causality method. The results of the study indicate that there is causality from REX to HP in some regions, and from HP to REX in some regions. Akkay (2021) examined the impact of nominal exchange rates and various indicators on HP in Turkey using the ARDL estimator. The results of the study indicate that nominal exchange rates positively affect HP.

Jack et al., (2019) investigated the impact of inflation and REX on HP in Ghana using the ARDL method. Accordingly, the effect of REX on HP is not significant, but inflation affects HP positively. Akça (2023) investigated the impact of CPI, REX, and IPI on HP in Turkey using the ARDL method. According to the results, the effect of CPI and REX on HP is negative, but the effect of IPI on HP is positive. Anari and Kolari (2002) examined the relationship between inflation and HP in the USA using the ARDL method. According to the results, there is a positive relationship between inflation and HP.

Mahmoudinia and Mostolizadeh (2023) investigated the relationship between HP and REX in Iran using ARDL and N-ARDL methods. N-ARDL results indicate that there is no cointegration between the variables. ARDL results show that GDP and REX have positive effects on HP in both the short term and the long term. Akpolat (2022) investigated the impact of REX and some variables on HP for Turkey using the N-ARDL method. Accordingly, the effect of REX on HP is positive. Islamoglu and Sabanoglu (2019) examined the impact of CPI on HP in some provinces in Turkey using the panel data method. Accordingly, the effect of CPI on HP is positive.

Tsatsaronis and Zhu (2004) examined the impact of inflation on HP using the structural vector autoregressive (SVAR) method in Ireland. Accordingly, the effect of inflation on HP is positive. Adams and Fuss (2010) examined the impact of economic activities on HP in 15 countries using OLS and panel cointegration methods. Accordingly, IPI and producer inflation positively affect HP in the long run. Kuang and Liu (2015) investigated the relationship between CPI and HP in China using the GMM method. According to the results of the study, the effect of CPI on HP is positive.

Meidani et al., (2011) investigated the effect of CPI and GDP on HP in Iran using the Granger causality method. According to the results of the study, the long-term effects of CPI and GDP on HP are positive. Katrakilidis and Trachanas (2012) examined the effect of IPI and CPI on HP in Greece with the N-ARDL method. The results of the study indicate that IPI and

CPI positively affect HP. Apergis and Rezitiz (2003) investigated the effect of inflation and other macroeconomic variables on HP in Greece using the variance research method. According to the report, inflation is an important variable that determines house prices.

3. Data, Model and Method

This article investigates the effect of tourism revenues, which has been a new subject of study recently, on housing prices. In addition, real effective exchange rates, consumer prices, and industrial production are included in the model as control variables. In the literature (Adams and Füss, 2010; Kishor and Marfatia, 2017), consumer price index and industrial production are considered determinants of housing prices.

This study is expected to contribute to the literature in several ways. First of all, studies investigating the effect of tourism revenues on housing prices in Turkey are quite limited. In addition, real effective exchange rates are an important factor that affects tourism revenues, consumer prices, and housing prices through demand and cost. In this regard, real effective exchange rates are included in the model as a demand-push and cost-push factor. In addition, among the studies examining the relationship between tourism and housing prices, no studies using the quantile regression method could be found. Quantile regression analysis results are more robust because quantile regression estimates the impact of independent variables on house prices across different quantiles of house prices. Therefore, this study is expected to contribute to the gap in the literature both in terms of the model and the method used.

The model of this study consists of the housing price index (HP), tourism revenues (TI), real effective exchange rate (REX), consumer price index (CPI), and industrial production index (IPI) variables. Natural logarithmic transformation of all variables was performed. The study consists of quarterly data for 2010: Q1-2023: Q2. Since the new house price index in the EVDS system is calculated after 2010, the starting period of the data is 2010; Q1.

Table 1: Variable definitions and Data Source

Variable	Definition	Source
HP	Natural logarithm Housing Prices Index (2017=100)	EVDS
TI	Natural logarithm Tourism Income (TL)	EVDS
REX	Natural logarithm of Reel Effective Exchange Rates (CPI Based, 2003=100)	EVDS
CPI	Natural logarithm of Consumer Price Index (2003=100)	EVDS
IPI	Natural logarithm Industrial Production Index (2015=100)	EVDS

In this study, the HP model was established based on studies such as Biagi et al., (2012), Biagi et al., (2015), Song et al., (2023), Zhang (2023), Yang et al., (2023), Peric et al., (2022), Paramati and Roca (2019), Wu et al., (2019)), Cong et al., (2023) and Yıldırım et al., (2022). The common aspect of these studies is that they examine the relationship between tourism activities and housing prices. However, other control variables and methods used in the model are different from each other. In this study, based on previous studies on the relationship between the housing market and tourism, the following model is estimated;

$$HP = f(TI, REX, CPI, IPI) \tag{1}$$

$$HP_t = \beta 0 + \beta 1 TI_t + \beta 2 REX_t + \beta 3 CPI_t + \beta 4 IPI_t + \varepsilon_i \tag{2}$$

The $\beta 0$ coefficient in Equation 2 represents the constant term of the model. $\beta 1\text{-}4$ is the coefficient that gives the effect of explanatory variables on the explained variable. The t in the model is the indicator of time. Finally, ε is the error term coefficient. Definitions of the variables and the data source are included in Table 1.

There are several reasons why control variables are included in the model. First of all, REX is a variable that affects the tourism sector, housing prices, producer and consumer prices,

and industrial production. In other words, REX is an important variable that determines housing prices through both demand and cost. REX in Turkey has been declining for the last 14 years. The depreciation of REX causes domestic goods and services to become relatively cheaper in international markets. This situation increases foreign demand for goods and services produced in Turkey, especially tourism. When increasing demand cannot be balanced with increased supply, demand-side pressures occur on prices. The decrease in REX also causes an increase in import costs in Turkey, which has a current account deficit, and thus production costs in the industry and other sectors in the domestic market increase. These increases in producer prices (PPI) eventually pass through to the CPI.

As a result, the change in REX affects CPI and IPI through supply and demand channels. Fluctuations in CPI and IPI may lead to cost and demand push effects in the housing sector. In addition, CPI represents the demand side of the housing sector and IPI represents the supply side. Therefore, in this study, REX, CPI, and IPI are included in the model as control variables that determine prices in the housing sector.

In this study, the quantile regression (QR) technique was applied for long-term prediction. The QR technique is based on the work of Koenker and Bassett (1978, 1982). The QR method used for time series analyses was adapted to panel data analyses with the contribution of Konker (2004, 2005). The QR method has many advantages over the standard OLS method and is more robust (Okada and Samreth, 2012). Standard OLS models have various weaknesses (Angrist et al., 2002; Horowitz and Markatou, 1996). The QR technique, on the other hand, provides strong evidence for investigating the asymmetric properties of the distributions of variables and estimates coefficients across different quantiles. In cases where the normality assumption cannot be met in the OLS method, the QR method can be preferred (John and Nduka, 2009). Because in the QR technique, the assumption of normality is ignored and the predicted results are more robust. In addition, the QR technique is also used in cases where other conditions (linearity, homoscedasticity, and independence) required for standard OLS estimation are not met. While arithmetic means are estimated in the OLS technique, the median containing all values is used in the QR technique. In the OLS method, it is estimated how the conditional mean of the dependent variable changes with the influence of other variables. However, the median estimate of the dependent variable or its estimate at different quantile levels is made using the QR technique (Lin and Benjamin, 2017). In other words, the effects of independent variables on the dependent variable are estimated across different quantiles of the dependent variable, such as 0.10-0.90 (Koenker and Hallock, 2001). This method estimates conditional quantiles and is also quite flexible compared to other techniques. The QR method has high flexibility in modeling data with heterogeneous distributions. Therefore, the QR method was preferred as the main estimator in this study because the median estimate is more robust against outliers.

The general form for QR is as follows;

$$Qy\ (\tau_k \mid x) = \inf\{b \mid Fy(b \mid x) \geq \tau\} = \sum_k \beta k(\tau) x_k = \dot{X}\beta(\tau) \qquad (3)$$

$Fy(b \mid x)$ in Equation 3 is the function that represents the conditional distribution of y given x. $\beta(\tau)$ determines the dependency relationship between X and Y at the τth conditional quantile level of Y. This dependency is unconditional if no external variables are added to x. However, if external variables are added to x, there is a conditional dependency. At a given level τ, the $\beta(\tau)$ coefficient is calculated by minimizing the weighted absolute deviations between x and y (Lin and Benjamin, 2017). The minimization model is as follows;

$$\beta(\tau) = \mathrm{argmin} \sum_{t=1}^{T} (\tau - 1\{y_t < \dot{X}_t\ \beta(\tau)\})\ \mid y_t\text{-}\dot{X}_t\ \beta(\tau) \mid \qquad (4)$$

Based on this model, the QR method was preferred in this study to examine the changes caused by REX, CPI, and IPI in HP along different quantiles of housing prices (HP). Thus, the QR model adapted to this study was established as follows:

$$Q(HP) = \beta_0(\tau) + \beta_1(\tau) TI_t + \beta_2(\tau) REX_t + \beta_3(\tau) CPI_t + \beta_4(\tau) IPI_t \qquad (5)$$

Thus, the effects of REX, CPI, and IPI on HP are estimated across different quantiles of HP.

Additionally, the stationarity levels of the variables are investigated before the long-term forecast. Stationarity estimation was made using Augmented Dickey and Fuller (ADF) (1979) and Phillips-Perron (PP) (1988) methods. In time series analysis, determining the stationarity level of variables is important for the choice of forecasting method. Because many econometric methods are sensitive to the stationarity level of variables. Johansen cointegration method and QR long-term estimator were used in this study. Therefore, in Johansen and QR methods, it is a condition that the variables are stationary at the same level. Therefore, it is determined that the variables become stationary at the first difference using ADF and PP methods. Then, the cointegration relationship between the variables was estimated using the Johansen (1988, 1991) technique. In ADF-PP unit root tests, the null hypothesis states that the variable is not stationary. In the Johansen cointegration technique, the null hypothesis states that there is no cointegration relationship between the variables.

Table 2: Descriptive Statistics and Correlation Matrix Results

Variable	HP	TI	REX	CPI	IPI
Mean	4.6569	8.9474	4.4466	5.8111	4.6345
Median	4.5411	8.6978	4.5341	5.6543	4.6422
Maximum	6.8254	11.4484	4.8134	7.1834	5.0328
Minimum	3.8286	7.15326	3.8630	5.1710	4.1077
Std. Dev.	0.7474	0.9884	0.2680	0.5351	0.2180
Skewness	1.3763	0.7921	-0.5910	0.9801	-0.1671
Kurtosis	4.3865	3.1160	2.0523	3.2039	2.3972
Jarque-Bera	21.375	5.6778	5.1647	8.7404	1.0688
Probability	0.0000	0.0584	0.0755	0.0126	0.5860
Sum	251.477	483.1642	240.1216	313.7999	250.2662
Sum Sq. Dev.	29.6131	51.7828	3.8071	15.1783	2.5200
Observations	54	54	54	54	54
HP	10000				
TI	0.8712	10000			
REX	-0.8969	-0.7202	10000		
CPI	0.9872	0.8325	-0.9408	10000	
IPI	0.8504	0.6371	-0.8851	0.8791	10000

Descriptive statistics and correlation matrix results are given in Table 2. According to the Jarque-Bera test results, other variables except HP and CPI have a normal distribution at the 5% significance level. That is, all variables are not normally distributed. HP, TI, and CPI have right-tail features while REX and IPI have left-tail features. The variable with the highest standard error is TI. Accordingly, the most volatility is in tourism revenues. Volatility in TI can also be seen in Figure 1. Accordingly, it can be said that the price elasticity of tourist activities may be high. The variable with the lowest standard error is IPI. Skewness and kurtosis results indicate that there is no symmetric and normal distribution.

Correlation matrix results indicate that there is a strong correlation relationship between variables. Accordingly, there is a positive correlation relationship between TI, CPI IPI, and HP, and a negative correlation relationship between REX and HP. The variable with the strongest correlation with HP is CPI. Correlation matrix results are consistent with expectations. The fact that REX has a negative correlation with HP is important in that exchange rate shocks express the demand and cost-side pressures on housing prices in Turkey. In addition, households can

increase housing demand by shifting their assets to the housing sector to protect themselves against high inflation. Thus, REX, CPI, and IPI are expected to increase housing prices due to both internal and external cost pressure and internal and external demand pressure.

4. Empirical Results and Discussions

In this part of the study, unit root test results, Johansen cointegration test results, and QR long-term estimation results are included, respectively.

Table 3: ADF and PP Unit Root Test Results

Variable	ADF		PP	
	Level	1.different	Level	1.different
HPI	1.1445	-5.4788*	1.0933	-3.9913*
TI	2.2407	-3.6703**	-1.9400	-12.3928*
REX	-3.2518***	-9.6836*	-3.1538	-11.9264*
CPI	0.2348	-3.9747**	1.8195	-3.9214**
IPI	-2.7368	-10.0873*	-6.80*	-24.6668*

Note: * and **, indicate significance level at 1% and 5%. For the ADF test, the Schwarz Information Criterion is taken into account. For PP testing, Bartlet Kernel is taken into account. The results refer to the model with trend and constant.

Stationarity results estimated by ADF and PP methods are shown in Table 3. According to ADF and PP methods, all variables are stationary at first difference. However, according to the ADF method, the REX variable is stationary at both level and first difference. According to the PP method, the IPI variable is stationary at both the level and first difference. However, according to the two methods, all variables are stationary at I (1). Therefore, it can be said that the variables in this study are not stationary at level, but are stationary at first difference. Therefore, it is appropriate to use Johansen and QR methods in this study.

Table4: Johansen Cointegarion Test Results

Hypothesized No. Of CE(s)	Stat. from trace test	Prob.	Stat. from max-eigen test	Prob.
None *	84.41618	0.0022	35.74291	0.0296
At most 1 *	48.67327	0.0418	29.62199	0.0270
At most 2	19.05128	0.4892	12.36617	0.5119

Table 4 shows the results of the Johansen cointegration test. Accordingly, there are at least two cointegration relationships in the model. In this model, there is a long-run cointegration relationship between house prices and independent variables.

Table 5: Results of Quantile Regression and Robustness Tests

Variable	OLS	FMOLS	DOLS	QR 0.10th	0.20th	0.30th	0.40th	0.50th	0.60th	0.70th	0.80th	0.90th
TI	7.0212*	8.5212*	1.6705*	3.1112	8.1621*	6.5555*	6.2621*	9.0506*	1.0205*	9.4006*	3.8772	-7.3623
	(1.5506)	(1.4406)	(4.0106)	(1.7605)	(1.7506)	(1.4006)	(1.6006)	(3.1406)	(2.5245)	(2.6353)	(8.3131)	(4.4545)
REX	-0.2125*	-0.1872*	-0.3031*	-0.1823	-0.1811*	-0.2417*	-0.2707*	-0.2721*	-0.2729*	-0.3186*	-0.3184*	-0.4842*
	(0.0514)	(0.0510)	(0.1102)	(0.2175)	(0.0681)	(0.0552)	(0.0548)	(0.0634)	(0.0606)	(0.0632)	(0.1329)	(0.1305)
CPI	1.1408*	1.1035*	0.5121***	1.0161*	0.9552*	1.0153*	0.9831*	0.9885*	0.9823*	0.9491*	1.2637*	1.3716*
	(0.0989)	(0.0953)	(0.2670)	(0.2482)	(0.1934)	(0.1572)	(0.1608)	(0.1431)	(0.1334)	(0.1252)	(0.3632)	(0.2023)
IPI	-0.2125	-0.2314	0.6034	-0.1360	-0.0614	-0.0672	0.0074	0.0012	0.0096	0.1048	-0.2631	-0.2149
	(0.1496)	(0.1475)	(0.4049)	(0.5269)	(0.2819)	(0.2334)	(0.2312)	(0.2068)	(0.1964)	(0.1754)	(0.3712)	(0.2263)

Note: *, ** and *** indicate the 1%, 5% and 5% significance level, respectively. The values in parentheses indicate standard errors.

Long-term prediction results of the quantile regression method and robustness analysis results of the OLS-FMOLS-DOLS methods are given in Table 5. The results of the QR method are consistent with the results of the OLS, FMOLS, and DOLS methods, and the QR results are robust.

The effect of tourism revenues on housing prices is positive across different quantiles of HP (0.20-0.70th quantiles). There is no significant effect at the 0.10, 0.80, and 0.90th quantile levels. At the 0.70th quantile level of HP, the effect of IP on HP is maximum. At the 0.60th quantile level, this effect is minimal. According to OLS, FMOLS, and DOLS results, the effect of TI on HP is positive. Coefficient estimates of OLS, FMOLS, and QR methods are generally quite high and coefficients are close to each other. However, according to the DOLS method, the coefficient of TI is lower than other methods. As a result, tourism revenues are an important variable affecting housing prices in Turkey and tourist activities affect housing prices positively. This result is consistent with expectations. Because the increase in tourism activities is associated with exchange rate shocks in Turkey. Tourism activities increase further in periods when exchange rate shocks increase. To meet the increase in tourism demand, the targeted group in the housing sector changes from domestic demand to external demand. In addition, due to insufficient housing supply in tourist cities such as Antalya, Istanbul, Izmir, Aydın, and Muğla, the highest housing price increases in recent years have been in these cities. In cities where tourism activities are intense, it is difficult to increase the housing supply due to reasons such as infrastructure problems and large agricultural areas. In addition, as housing becomes relatively cheaper in the foreign market, the housing demand of wealthy tourists increases. Thus, domestic demand combines with foreign demand, resulting in a rapid increase in demand in the housing sector. Due to the low elasticity of housing supply compared to housing demand, housing supply remains below housing demand. As a result of this situation, the increase in touristic activities in Turkey leads to an increase in housing prices in various aspects, as mentioned by Yang et al. (2023). The positive relationship between tourism revenues and housing prices supports the results of studies (Yandg vd., 2023; Peric vd., 2022; Paramati ve Roca, 2019; Wu vd., 2019; Biagi vd., 2015; Alola vd., 2019; Cro ve Martins, 2023; Cong vd., 2023) in the literature.

The other variable whose impact on housing prices is investigated in this study is CPI-based real effective exchange rates (REX). REX is obtained by removing the price effects of the weighted average of TL in a basket created based on the currencies of countries that have a significant share in Turkey's foreign trade. In other words, it is the geometric mean of the ratio of the price level of goods and services in Turkey to the price levels of goods and services in countries with which foreign trade is carried out. Accordingly, if the value of REX increases, the price of Turkish goods and services against foreign goods and services increase. An increase in REX means that TL appreciates against foreign currencies and at the same time, prices of domestic goods and services increase in the foreign market. This situation encourages imports and reduces exports. But in recent years, the nominal value of the Turkish lira has continued to decrease. The increase in nominal exchange rates causes the REX to decrease and thus the prices of Turkish goods and services to decline against the prices of foreign goods and services. While this situation encourages the export of goods and services, especially tourism, it also leads to an increase in import costs. Increasing import prices of energy, raw materials, other equipment, electrical products, steel, iron, and high-tech products, which are especially required in the housing sector, put pressure on production costs, especially in the housing sector. For example, since 2010, REX has lost approximately 60% of its value and dropped from 120 to 50. The constant depreciation of REX brought cost and demand-side pressures on housing prices. Therefore, sudden demand and cost increases resulting from the depreciation of REX

are expected to increase housing prices. The correlation matrix results in Table 2 also support this expectation. The results of the QR, OLS, FMOLS, and DOLS techniques in Table 5 are in line with the expectations and the results of studies such as Asal (2018), Akkay (2019), and Akça (2023). According to the QR results, the effect of REX on HP is negative across all quantiles of HP. In other words, a decrease in REX leads to an increase in housing prices due to cost and demand push effects. In addition, in recent years, the government has initiated low-interest campaigns through monetary and fiscal policies, leading to an increase in domestic housing demand. Thus, increases in total demand and costs due to the decrease in REX and government policies led to an excessive increase in housing prices in Turkey. The increase in housing prices by approximately 730% between 2019 and 2023 (EVDS, 2023) indicates that exchange rates, costs, population, tourist activities, total demand, and the perception of protection from inflation are effective in the housing sector. According to the results of the QR technique, the negative effect of REX on HP increases at higher quantile levels of HP. Accordingly, while the impact of REX on HP was lowest at the 0.20th quantile level of HP, this effect was highest at the 0.90th quantile level of HP. In addition, OLS, FMOLS, and DOLS results indicate that the impact of REX on HP is negative.

The effect of CPI, another variable in the model, on HP, is positive according to all estimators. According to the results of the QR technique, the effect of CPI on HP is positive at all quantile levels of HP. As the quantile levels of HP grow, the effect of CPI on HP also grows. That is, at the 0.20th quantile level of HP, the impact of CPI on HP is minimal, and at the 0.90th quantile level, this effect is maximum. The results of OLS, FMOLS, and DOLS methods support the QR results. Although the positive impact of CPI on HP is contrary to the law of demand, this result is compatible with expectations in Turkey. Housing sales in Turkey have recently broken a record and approached 1.5 million annually, despite the price increases in CPI and PPI. There are several reasons for the increase in demand in the housing sector. Firstly, as stated before, it is the increase in foreign demand in the housing sector resulting from exchange rate shocks. The second is the housing demand that emerged as a result of the spread of refugees, whose number reached five million, throughout the country. The third and most important is the monetary-fiscal policies that accelerate the housing demand of domestic consumers and the inflation expectations regarding housing. In recent years, various housing campaigns, such as housing campaigns supported by very low-interest rates and new housing campaigns, have accelerated consumers' housing demand. However, since housing supply was not as flexible as housing demand, there were demand-side price pressures in the housing sector. In short, record increases in housing prices have occurred in Turkey due to the combined increase in cost and demand inflation. As stated in the studies of Rubens et al., (1989), Anari and Kolari (2002), Moigne and La (2008), Aqsha and Masih (2018), Amonhaemanon (2013), and Nguyen (2022), the increase in housing demands of consumers who want to protect themselves from inflation in Turkey increased housing prices. In other words, these results provide strong evidence that the housing sector in Turkey is a method of protection from inflation. This shows that the effect of CPI on HP in Turkey is positive due to demand-side pressures. These results confirm the results of studies such as Tu (2000), Abelson (2005), Guo et al., (2015), Kuang and Liu (2015), Tripathi (2019), Islamoglu and Nazlioglu (2019), Karadaş and Salihoglu (2020) and Alola et al., (2020).

The other independent variable in this study is IPI. According to QR, OLS, FMOLS, and DOLS methods, IPI has no significant effect on HP. The industrial sector refers to the supply side of the housing sector. Considering the studies in the literature (Karaagac, 2018; Çetin, 2021), IPI is expected to reduce housing prices as industrial production increases the housing supply. However, there are some predictions that industrial production may have a positive impact on housing prices due to the increase in exchange rates and other input costs in recent years.

Conclusion and Policy Recommendations

This study investigates the effect of tourism revenues on housing prices under the shadow of the real effective exchange rate, consumer price index, and industrial production index using the quantile regression method. Additionally, robustness testing was performed using OLS, FMOLS, and DOLS methods. There are few studies in the literature examining the effect of tourism revenues and real effective exchange rates on housing prices in Turkey.

In recent years, housing prices in Turkey have continued to increase rapidly due to population growth and economic policies. Between 2010 and 2023, average housing prices increased approximately 20 times. During the same periods, average inflation increased approximately 7 times. The fact that in Turkey average housing prices increased faster than the average inflation indicates that the housing is perceived by consumers as an inflation protection and investment tool. Additionally, due to the political and economic problems in the Middle East and Syria, Turkey hosts approximately 5 million refugees. In addition, Türkiye hosts more than 50 million tourists. Thus, the cumulative total population during the year reaches 140 million.

The increase in nominal exchange rates between 2010 and 2023 is more than 15 times. Real effective exchange rates decreased from 120 to 50. Increases in nominal exchange rates triggered tourism demand and producer and consumer inflation due to increased import costs. Recent developments in exchange rates, population, tourist activities, and inflation have caused some problems in the housing sector, such as price increases, rent increases, and the inability to find housing in Turkiye.

The results of the QR, OLS, FMOLS, and DOLS methods applied in the study are robust. According to the results obtained with the QR method, the effect of TI on HP is positive throughout all significant quantiles of HP. Accordingly, tourism revenues are the determinant of housing prices in Turkey. As stated before, the reason why tourism revenues increase housing prices is due to the increased demand for housing by wealthy foreigners and the lack of sufficient housing stock in cities.

The effect of REX on HP is negative according to QR results. As the quantile level of HP increases, the negative effect of REX on HP also increases. Accordingly, the depreciation of the domestic currency in Turkey leads to an increase in foreign demand for goods and services and import costs. Rising import costs increase producer and consumer inflation in the domestic market. Due to increases in cost and demand, prices in the housing sector in Turkey have been increasing rapidly recently.

According to the results of the QR method, the impact of CPI on HP is positive. In other words, increasing consumer inflation increases housing prices. Although this situation is contrary to the law of demand, it is compatible with expectations in Turkey. In recent years, housing sales have continued to increase rapidly despite price increases in CPI and PPI. There are several reasons for the high demand for housing. Firstly, as stated before, the housing demand of foreigners is increasing. The second is the housing need of refugees, whose number has reached 5 million. The third and most important is the monetary-fiscal policies and consumer perception that accelerate the housing demand of domestic consumers. Various housing campaigns launched by the government in recent years have accelerated consumers' housing demand. However, since housing demand was greater than housing supply, demand-side price pressures occurred. In addition, as stated in the studies of Rubens et al. (1989), Anari and Kolari (2002), Moigne and La (2008), Aqsha and Masih (2018), Amonhaemanon (2013) and Nguyen (2022), the increase in housing demand of consumers who wanted to protect themselves from high inflation also supported the increase in housing prices. These results show that housing in Turkey is an investment and inflation protection tool.

According to the most important finding of this study, both cost inflation and demand inflation determine housing prices in Turkey. Because although there is excess demand for housing, there is not enough supply of housing due to high costs. The fact that the gap between housing demand and housing supply is widening against supply indicates that supply-side problems continue in the housing sector. Here, demand inflation caused by the local population, tourists, and refugees triggers prices. As a result of the continuous decline in the real effective exchange rate, the increase in import costs for the basic inputs of the housing sector in Turkey triggers cost inflation. This situation slows down housing production. In addition, housing policies announced by the government also increase housing demand. Therefore, policymakers need to balance the factors that create cost and demand-pushing effects in the housing sector with the help of monetary and fiscal policies. Additionally, if the following regulations are made in the housing sector, housing prices may stabilize; Preventing the perception of the housing sector as a tool for protection against inflation, Increasing and supporting housing production, Preventing cost increasing factors in housing, Regulating housing sales to foreigners, Making new regulations to solve the housing problems of refugees, Regulating infrastructure problems in cities where tourism is intense, Spreading touristic activities to larger areas, Balancing exchange rates in appropriate places, Reorganizing housing campaigns that lead to sudden increases in total housing demand.

Reference

Abelson, P., Joyeux, R., Milunovich, G., & Chung, D. (2005). Explaining house prices in Australia: 1970–2003. Economic record, 81, S96-S103.

Adams, Z., & Füss, R. (2010). Macroeconomic determinants of international housing markets. Journal of Housing Economics, 19(1), 38-50.

Akça, T. (2023). House price dynamics and relations with the macroeconomic indicators in Turkey. International Journal of Housing Markets and Analysis, 16(4), 812-827.

Akkay, R. C. (2021). The macroeconomic determinants of the housing prices in Turkey. Erciyes Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, (58), 241-264.

Akpolat, A. G. (2022). The asymmetric effects of real variables on real housing prices: a nonlinear ARDL analysis for Turkey. International Journal of Housing Markets and Analysis.

Alola, A. A., Asongu, S. A., & Alola, U. V. (2020). House prices and tourism development in Cyprus: A contemporary perspective. Journal of Public Affairs, 20(2), 2035.

Amonhaemanon, D., De Ceuster, M. J., Annaert, J., & Le Long, H. (2013). The inflation-hedging ability of real estate evidence in Thailand: 1987-2011. Procedia Economics and Finance, 5, 40-49.

Anari, A., & Kolari, J. (2002). House prices and inflation. Real Estate Economics, 30(1), 67-84.

Apergis, N. (2003). Housing prices and macroeconomic factors: prospects within the European Monetary Union. International real estate review, 6(1), 63-74.

Aqsha, N. S., & Masih, M. (2018). Is residential property the ultimate hedge against inflation? new evidence from Malaysia based on ARDL and nonlinear ARDL.

Archer, B. (1995). Importance of tourism for the economy of Bermuda. Annals of tourism research, 22(4), 918-930.

Asal, M. (2018). Long-run drivers and short-term dynamics of Swedish real house prices. International Journal of Housing Markets and Analysis, 11(1), 45-72.

Bahmani-Oskooee, M., & Wu, T. P. (2018). Housing prices and real effective exchange rates in 18 OECD countries: a bootstrap multivariate panel Granger causality. Economic Analysis and Policy, 60, 119-126.

Balaguer, J., & Cantavella-Jorda, M. (2002). Tourism as a long-run economic growth factor: the Spanish case. *Applied economics*, *34*(7), 877-884.

Balsalobre-Lorente, D., Driha, O. M., Bekun, F. V., & Adedoyin, F. F. (2021). The asymmetric impact of air transport on economic growth in Spain: fresh evidence from the tourism-led growth hypothesis. *Current issues in tourism*, *24*(4), 503-519.

Bekun, F. V., Adedoyin, F. F., Etokakpan, M. U., & Gyamfi, B. A. (2022). Exploring the tourism-CO2 emissions-real income nexus in E7 countries: accounting for the role of institutional quality. *Journal of Policy Research in Tourism, Leisure and Events*, *14*(1), 1-19.

Belisle, F. J., & Hoy, D. R. (1980). The perceived impact of tourism by residents a case study in Santa Marta, Colombia. Annals of tourism research, 7(1), 83-101.

Biagi, B., Brandano, M. G., & Lambiri, D. (2015). Does Tourism Affect House Prices? Evidence from I taly. *Growth and Change*, *46*(3), 501-528.

Biagi, B., Lambiri, D., & Faggian, A. (2012). The effect of tourism on the housing market. Handbook of tourism and quality-of-life research: enhancing the lives of tourists and residents of host communities, 635-652.

Chen, W, & Lei, Y, (2018). The impacts of renewable energy and technological innovation on environment-energy-growth nexus: New evidence from a panel quantile regression. Renewable Energy,

Churchill, S. A., Inekwe, J., & Ivanovski, K. (2022). Has tourism driven house prices in Germany? Time-varying evidence since 1870. *Tourism Economics*, *28*(7), 1705-1723.

Cong, S., Chin, L., & Abdul Samad, A. R. (2023). Does urban tourism development impact urban housing prices?. International Journal of Housing Markets and Analysis.

Cró, S., & Martins, A. M. (2023). Tourism activity affects house price dynamics? Evidence for countries dependent on tourism. *Current Issues in Tourism*, 1-19.

Cunha, A. M., & Lobão, J. (2022). The effects of tourism on housing prices: applying a difference-in-differences methodology to the Portuguese market. International Journal of Housing Markets and Analysis, 15(4), 762-779.

Çetin, A. C. (2021). Türkiye'de konut fiyatlarına etki eden faktörlerin analizi. Mehmet Akif Ersoy Üniversitesi Uygulamalı Bilimler Dergisi, 5(1), 1-30.

Dickey, D. A., & Fuller, W. A. (1979). Distribution of the estimators for autoregressive time series with a unit root. Journal of the American statistical association, 74(366a), 427- 431.

Dickey, D. A., & Fuller, W. A., (1981). Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root. Econometrica, 49, 1057-1072.

Durbarry, R. (2004). Tourism and Economic Growth: The Case of Mauritius. Tourism Economics, 10(4), 389-401.

Fayissa, B., Nsiah, C., & Tadasse, B. (2008). Impact of tourism on economic growth and development in Africa. Tourism Economics, 14(4), 807-818.

Guo, H., Wang, D., & Ma, X. (2015). A study on the relationship between housing prices and inflation from the perspective of bank credit. Metallurgical & Mining Industry, 9, 473-477.

Hwang, J., & Lee, J. (2019). A strategy for enhancing senior tourists' well-being perception: Focusing on the experience economy. Journal of Travel & Tourism Marketing, 36(3), 314-329.

İslamoğlu, B., & Nazlıoglu, Ş. (2019). Enflasyon ve Konut Fiyatları: Istanbul, Ankara ve Izmir için panel veri analizi. Siyaset, Ekonomi ve Yönetim Araştırmaları Dergisi, 7(1), 93-99.

Jack, J. K. A., Okyere, F., & Amoah, E. K. (2019). Effects of exchange rate volatility on real estate prices in developing economies, a case of Ghana. Advances in Social Sciences Research Journal, 6(11), 268-287.

Johansen, S. (1988). Statistical Analysis of Cointegrated Vectors. Journal of Economic Dynamics and Control, 12, 231-254.

Johansen, S. (1991). Estimation and Hypothesis Testing of Cointegrated Vectors in Gaussian Vector Autoregressive Models. Econometrica, 59, 1551-1580.

John, O.O., Nduke, E.C. (2009). Quantile Regression Analysis as A Robust Alternative to Ordinary Least Squares. Scientia Africana 8(2), s. 61-65

Karadaş, H. A., & Salihoglu, E. (2020). Seçili makroekonomik değişkenlerin konut fiyatlarina etkisi: Türkiye örneği. Ekonomik ve Sosyal Araştırmalar Dergisi, 16(1), 63-80.

Karağaç, G. A., & Altınırmak, S. (2018). TÜRKİYE KONUT FİYAT ENDEKSİ VE DÜZEY BAZLI KONUT FİYAT ENDEKSLERİ İLE SEÇİLİ DEĞİŞKENLER ARASINDAKİ NEDENSELLİK İLİŞKİSİ. Karadeniz Uluslararası Bilimsel Dergi, 39(39), 222-240.

Katrakilidis, C., & Trachanas, E. (2012). What drives housing price dynamics in Greece: New evidence from asymmetric ARDL cointegration. Economic Modelling, 29(4), 1064-1069.

Kishor, N. K., & Marfatia, H. A. (2017). The dynamic relationship between housing prices and the macroeconomy: Evidence from OECD countries. The Journal of Real Estate Finance and Economics, 54, 237-268.

Koenker, R. (2004). Quantile regression for longitudinal data. Journal of Multivariate Analysis, 91:74–89.

Koenker, R. (2005). Quantile Regression. Cambridge University Press.

Koenker, R., & Bassett, G. (1978). Regression Quantiles. Econometrica, 46(1), 33–50. https://doi.org/10.2307/1913643

Koenker, R., & Bassett, G. (1982). Tests of Linear Hypotheses and l"1 Estimation. Econometrica, 50(6), 1577–1583. https://doi.org/10.2307/1913398

Koenker, R., Kevin F. H. (2001).Quantile Regression. Journal of Economic Perspectives, 15 (4): 143-156.

Kuang, W., & Liu, P. (2015). Inflation and House Prices: Theory and Evidence from 35 Major Cities in China. International Real Estate Review, 18(2).

Le Moigne, C., & La, É. (2008). Private real estate as an inflation hedge: An updated look with a global perspective. Journal of Real Estate Portfolio Management, 14(4), 263-286.

Lin, B., & Benjamin, N. I. (2017). Influencing factors on carbon emissions in China transport industry. A new evidence from quantile regression analysis. Journal of cleaner production, 150, 175-187.

Liu, H., & Song, H. (2018). New evidence of dynamic links between tourism and economic growth based on mixed-frequency granger causality tests. Journal of Travel Research, 57(7), 899-907.

Liu, K., Wang, Y., & Lin, L. (2020). Will Tourism Development Increase Housing Prices? Based on the Empirical Analysis of Hainan Province, China. International Journal of Frontiers in Sociology, 2(3).

Mahmoudinia, D., & Mostolizadeh, S. M. (2023). Asymmetric interaction between house prices, stock market and exchange rates using linear and nonlinear approach: the case of Iran. International Journal of Housing Markets and Analysis, 16(4), 648-671.

Malik, S., Chaudhry, I. S., Sheikh, M. R., & Farooqi, F. S. (2010). Tourism, economic growth and current account deficit in Pakistan: Evidence from co-integration and causal analysis. European Journal of Economics, Finance and Administrative Sciences, 22(22), 21-31.

Marin, D. (1992). Is the export-led growth hypothesis valid for industrialized countries?. The Review of Economics and Statistics, 678-688.

Mayer, M., & Vogt, L. (2016). Economic effects of tourism and its influencing factors. Zeitschrift für Tourismuswissenschaft, 8(2), 169-198.

Naji Meidani, A.A., Zabihi, M. and Ashena, M. (2011). House prices, economics output, and inflation interactions in Iran. Research in Applied Economics, 3(1), 1-13.

Narayan, P. K., Narayan, S., Prasad, A., & Prasad, B. C. (2010). Tourism and Economic Growth: A Panel Data Analysis for Pacific Island Countries. Tourism Economics, 16(1), 169-183.

Nguyen, B. T. T. (2022). Can housing investment hedge against inflation?. *International Journal of Housing Markets and Analysis*.

Okada, K., & Samreth, S. (2012). The effect of foreign aid on corruption: A quantile regression approach. Economics letters, 115(2), 240-243.

Öztürk, N., & Fitöz, E. (2009). Türkiye'de Konut Piyasasının Belirleyicileri: Ampirik Bir Uygulama. ZKÜ Sosyal Bilimler Dergisi, 5(10), 21-46.

Pablo-Romero, M. D. P., & Molina, J. A. (2013). Tourism and economic growth: A review of empirical literature. Tourism Management Perspectives, 8, 28-41.

Paramati, S. R., & Roca, E. (2019). Does tourism drive house prices in the OECD economies? Evidence from augmented mean group estimator. Tourism Management, 74, 392-395.

Paramati, S. R., Alam, M. S., & Chen, C. F. (2017). The effects of tourism on economic growth and CO2 emissions: a comparison between developed and developing economies. *Journal of Travel Research*, *56*(6), 712-724.

Perić, B. Š., Smiljanić, A. R., & Kežić, I. (2022). Role of tourism and hotel accommodation in house prices. Annals of Tourism Research Empirical Insights, 3(1), 100036.

Phillips, P. C., & Perron, P. (1988). Testing for a unit root in time series regression. Biometrika, 75(2), 335-346.

Ramesh, D. (2002). The economic contribution of tourism in Mauritius. Annals of Tourism Research, 29(3), 862-865.

Rubens, J., Bond, M., & Webb, J. (1989). The inflation-hedging effectiveness of real estate. Journal of Real Estate Research, 4(2), 45-55.

Sequeira, T. N., & Maçãs Nunes, P. (2008). Does tourism influence economic growth? A dynamic panel data approach. *Applied economics*, *40*(18), 2431-2441.

Song, C., Liu, Y., Li, X., Zhang, J., & Lyu, Q. (2023). Tourism development and urban housing prices: Evidence from China. *Tourism Economics*, 13548166231186906.

Süleymanlı, C. (2019). Türkiye'de Yabancıların Konut Edinimi İle Döviz Kuru Arasındaki İlişki: Eşbütünleşme Analizi (2013-2019). Bingöl Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi , 3 (2) , 117-136

ŞanlıI, O., & Peker, O. (2022). Enflasyon, Kur, Faiz ve Gelirin Konut Satışlarına Etkisi: Türkiye Örneği. *Journal of Economic Policy Researches*, *10*(1), 37-60.

Tripathi, S. (2019). Macroeconomic determinants of housing prices: a cross country level analysis.

Tsatsaronis, K., & Zhu, H. (2004). What drives housing price dynamics: cross-country evidence. BIS Quarterly Review, March.

Tu, Y. (2000). Segmentation of Australian housing markets: 1989–98. Journal of property research, 17(4), 311-327.

TUİK, (2023). https://data.tuik.gov.tr/Bulten/Index?p=House-Sales-Statistics-December-2022-

49526#:~:text=Yabanc%C4%B1lara%202022%20y%C4%B1l%C4%B1nda%2067%20bin,ar tarak%2067%20bin%20490%20oldu.

UNHCR, (2023). https://www.unhcr.org/refugee-statistics/

UNWTO, (2023). https://www.unwto.org/

Uysal, M., & Gitelson, R. (1994). Assessment of economic impacts: Festivals and special events. Festival Management and Event Tourism, 2(1), 3-9.

Varlık, N. (2020). Ekonomik büyümenin konut fiyatları üzerindeki asimetrik etkisi: NARDL uygulaması. Hitit Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 13(2), 352-367.

Wakimin, N., Azlinaa, A., & Hazman, S. (2018). Tourism demand in Asean-5 countries: Evidence from panel data analysis. Management Science Letters, 8(6), 677-690.

Wu, T. P., Wu, H. C., Chu, C. C., & Deng, R. (2021). Tourism and house prices: A wavelet analysis. *Journal of China Tourism Research*, *17*(1), 1-16.

Wu, T. P., Wu, H. C., Gao, R., & Wu, Y. Y. (2022). Nexus Between Tourism and House Prices: Quantile-on-Quantile Approaches. Tourism: An International Interdisciplinary Journal, 70(3), 432-446.

Yang, L., Khaskheli, A., Raza, S. A., & Shah, N. (2023). Panel smooth transition regression approach to analyzing tourism development–housing price nexus in G7 countries. International Journal of Housing Markets and Analysis, 16(1), 218-231.

Yıldırım, M. O., & Karul, C. (2022). Does tourism affect house prices in Turkey? Evidence from smooth structural break tests. *International Journal of Housing Markets and Analysis*, *15*(5), 1033-1052.

Yu, W., Ma, Z., Pant, G., & Hu, J. (2021). The effect of virtual tours on house price and time on market. Journal of Real Estate Literature, 28(2), 133-149.

Zhang, J. (2023). Tourism development and housing price: An interplay. Tourism Economics, 13548166231184792.

Digital Financial Inclusiveness Through Financial Technology in Ethiopia: Case Study on TeleBirr

Ousman Mohammed YIMAM[1]

Introduction

The emergence and advancement of technologies and innovations forced institutions to revise their strategy in a way that can create well-advanced financial products to be delivered quickly. With financial technology, financial institutions offer more comprehensive financial products and services at lower costs and address every corner through different technologies. One concept related to financial technology (financial technology) is its ability to include and manage disadvantaged groups. Digitalizing the financial sector can provide new technologies that promote financial access and inclusiveness. Most scholars argue that financial technology can bring financial inclusiveness and address disadvantaged groups worldwide (Buchak et al., 2017).

Financial inclusiveness implies accessing financial products like digital loan services, digital payments, mobile money transactions, and mobile banking using digital phones and computers (Sahay et al., 2020). The global financial index (2022) result shows that seventy-six percent of the population worldwide owns a bank account, which has increased by 50 percent in the last ten years. Digital payment in developing countries has also increased to 57 percent in 2021, where this number reached 95 percent in the developed world. In addition, 40 percent of these adults using digital payment platforms also use their accounts for saving or borrowing purposes.

Financial technology is expected to replace gaps in payments and loans, mainly when conventional financial service delivery is unavailable. The research undertaken by Fuster et al. (2018) demonstrated that financial technology is a supplement to traditional banking services, not a replacement. In addition, it has been discovered that digital financial service access is a crucial instrument contributing to countries' digital economy (Demirguc et al., 2017). In comparison, a one percent increase in mobile use results in a 0.3 percent rise in revenue (Ghosh, 2016). Multiple empirical studies have shown that expanding access to mobile technology encourages more individuals to engage in the financial system, fostering economic growth.

Andrianaivo and Kpodar (2012) proved the significance of using cell phones for a nation's economic development. Ethiopia's economy is explained by the small size and area of its financial sector (Zwedu, 2014). Ethiopia's most prominent barriers to financial inclusiveness are problems with access to finance and financial institution's failure to address all areas in the country (Dinku, 2019). In Ethiopia, financial inclusiveness performance is below average compared to East African states and the Sub-Saharan African average (Lakew & Azadi, 2020).

Furthermore, the most severe difficulties to Ethiopia's financial inclusiveness strategy are lack of employment opportunities, below-average income, and use of informal financial transaction systems and institutions. The expansion of financial sectors in Ethiopia over the last few decades has been very beneficial in creating financially inclusive citizens. In 2022, for instance, bank branches reached 8900, increasing the overall number by 14.5 percent.

[1] Ph.D. Candidate, İktisadi ve İdari Bilimler Fakültesi, Ondokuz Mayıs Üniversitesi

Therefore, this research aims to assess how telebirr (Financial technology) helps spread awareness of digital financial services among the massive unbanked population. The study also discussed the main impediments and enablers that affect innovation and financial technology usage in supporting the example of telebirr, digital financial inclusiveness in Ethiopia. The primary reason to conduct the study is that there is a vast and significant potential in the country's high young generation composition. In addition, fast growth in technology, the launch of new regulations in financial technology, the emergence of new financial technology companies, and the future potential of financial technology at the continent level are some of the reasons I have decided to conduct this study. Furthermore, the lack of sufficient studies and literature in the area and the recent trendiness of financial technology in Ethiopia are the other reasons that drove the researcher to focus on the subject matter.

Company Background

The latest company that joined the Ethiopian financial technology market is telebirr, owned by the only government-owned telecom company, Ethiopian telecommunication corporation. This financial technology platform was launched in 2021 with a motto of "financial access for all." Huawei developed the platform to facilitate cashless financial transactions, including credit services. This mobile money service allows users to deposit/withdraw cash, buy airtime, cover utility payments, make international remittances, and credit services using different models such as Endekise, mela, and Sanduq. They follow the same M-PESA model, attracting millions in less than three years.

The launch of telebirr has shifted the financing environment in the country aimed at addressing more than 110 million people that commercial banks failed to manage throughout the country. These two financial technology companies (one private and the other government-owned) create significant support for the country's financial system. With these financial technology companies, thousands get job opportunities, millions access finance quickly, and the country's cashless banking system.

Figure1: Services of Telebirr

Source: Author Compilation from telecom website, 2022

Business Operation and Model

The financial technology model of telebirr consisted of stakeholders, including commercial banks, Ethiopian telecommunication corporations, and other government institutions. Ethiopian telecommunication corporation is the only internet and telecommunication service provider within the country that launched the telebirr mobile financial system in 2021. Currently, telebirr is working with nine international remittance companies, Ethiopian Airlines, Ethiopian electricity, and different commercial banks.

I.Registration for telebirr

Telebirr registration can be done using a mobile app, USSD, and an agent. Users should download the application and create a new account through their mobile phones to register using a mobile wallet application. In addition, users need to have a registered mobile number that will enable them to receive the code. Users must fill in all necessary information, including their full name, date of birth, and personal information. The other option is the use of the USSD short code. Users can use this platform to dial "*127#" to register for telebirr. The last option to register for a telebirr account is using agents. Different telebirr agents are operating across the country. They are responsible for facilitating the registration and support of users of telebirr accounts.

II.Send and Receive Money using Telebirr

Users can send and receive money anywhere they want, regardless of the subscription status of their counterparts in every corner of the country. Furthermore, more than ten banks are involved in this system that enables customers to send money from their bank account using their telebirr account. Different banks have operating systems consisting of internet banking, mobile banking, and USSD systems.

III.Deposit and Withdraw Cash

One of the critical objectives of telebirr is to promote a cashless society throughout the country. The system enables users to convert their cash to equivalent electronic money that can be similarly used for payments and transactions. To deposit cash into their account, users can visit the nearest telebirr agent or the Ethiopian telecommunication corporation office to provide the cash. Then the agent can transform the cash into equivalent e-money to their account. In addition, users can use their bank account linked with telebirr and their USSD platform to convert money into e-money. On the other hand, users (registered or non-registered) can withdraw the cash sent to them using telebirr platforms. Registered users can use their telebirr account to withdraw their money or convert it to equivalent e-money.

IV.Pay with Telebirr

Telebirr can be used to pay different utility bills of various organizations, including flight tickets. The platform has a "pay with telebirr" button that directs users to choose the institution they want to pay. Organizations partnered with telebirr, in this case, are Ethiopian telecommunication corporation, unity park, DSTV, Immigration, digital lottery, revenue bureau, Ministry of foreign affairs, electricity, traffic office, water bureau, Ethiopian Airlines, petrol offices, document authentication, registration office. Users can use websites, USSD codes, SMS specific to each organization, or mobile apps to pay their utility bills. Furthermore, users can use their telebirr account to buy airtime, salary, and mobile packages, donate funds, and pay for consumer goods.

V.International Remittance

Money sent back from abroad is an essential contributor to the economy of Ethiopia. For that matter, it is anticipated that telebirr would play its role in ensuring the seamless flow of international money transactions to Ethiopia. Using telebirr international remittance, users can easily receive money using the application or the SMS code from their families or friends. To receive their money, users do not need to go to the bank; instead, they can collect it from any telebirr agent. Currently, nine signatory international remittance organizations are working with telebirr. These are talkremit, remitly, world-remit, toptap send, money transfer, azimo, masterremit, moneytrans, and majority.

VI.Telebirr Finance

In august 2022, Ethio telecom launched three new digital financial services in collaboration with Dashen Bank. The objective is to provide loan services to clients ranging from ten to a hundred thousand Ethiopian birrs, including money transactions. The three digital financial service models are telebirr Mela, telebirr Kuteba, and telebirr Endekisse. Each model has a different objective and target to address various categories of clients across the country. It is also used to help micro, small and medium-sized firms expand their business and use it as a start-up.

Telebirr Mela (Micro Credit)

This digital financial service platform will let individuals and businesses borrow up to 10,000 and 100,000, respectively. This model will help users to borrow a small amount of money to start or expand businesses. One of the services of telebirr-mela is letting the public and private employees get credit (mela medaresha) with the condition of using telebirr services. Mela medaresha is a system that enables employees to borrow money in case they need it while their salary payment date is not approaching.

Table 1: Mela Medaresha

Product	Minimum	Maximum	Facilitation fee
Credit amount	1000	36000	
Due date	After 90 days/ 3-Months		
Repayment schedule	Installment-based (Per Month)		
	After the due date (90 days)		0.5% per day

Source: Ethio Telecom, 2022

Employees can borrow a minimum of 1000 and a maximum of 36000 ETB that will be due after three months with a 10 percent facilitation fee. However, there will be a 0.5 percent penalty per day if they fail to pay the amount within three months. Their salary will be credited to a telebirr account, letting the system take the amount automatically. Employees can borrow 1/3 of their salary, and the employer company should sign the agreement to transfer the stipulated amount during their salary payment time. In addition, employees shall receive at least a three-month salary before applying for mela medaresha credit service. To fulfill all requirements, users can borrow money using telebirr mela between the specified minimum and maximum limits.

The charge for each service is 1 %, 3%, and 6% for daily, weekly, and monthly payments, respectively. The service charge will increase by 0.5% for everyday users who fail to pay on the due. During default time, Dashen bank has full authority and the right to take the case to court.

Telebirr Endekise (Overdraft Service)

This digital financial service model is designed to support individuals and businesses to activate and use credit services when they face short of balance. Table 2 indicates users can start borrowing when their scoring band reaches 720. The maximum borrowing for an Endekise overdraft is 1500 birr, while they get an 850 band score and above. The procedures and service charges are applied similarly to telebirr mela.

Table 2: Credit Limit for Telebirr Endekise

Scoring Band Range		Credit Amount limit		Scoring Band Range		Credit Amount limit	
Min	Max	Min	Max	Min	Max	Min	Max
0	720	0	0	781	790	1	500
721	730		5	791	800		600
731	740		50	801	810		700
741	750		100	811	820		800
751	760		200	821	830		1000
761	770		300	831	840		1200
771	780		400	841	850		1500
				851	860		1500

Source: Telebirr, 2022

Users have one month to repay their debt starting from the date of purchase with a service charge of 6% on day one and 0.138% per day for the rest of the payment period. In addition, the 0.5% per day penalty on the unpaid balance of the credit or partial payment.

Tele Sanduq (Micro Saving)

The third digital financial service platform also called saving account, is designed to let users save their money using the digital financial platform. This platform is designed for both interest-bearing and non-interest-bearing users. Once users save up to 26 ETB can start getting interested in their savings except for non-interest-bearing saving account holders. If you enabled the saving with interest service, you would receive payments for the amount saved at periodic intervals defined by the lender at the maturity dates of such deposits.

Objectives

The study's main objective is to examine how telebirr (financial technology) can promote digital financial inclusiveness in Ethiopia. The paper specifically seeks to.

1. Examine the status of digital financial inclusiveness in Ethiopia

2. Discuss how Telebirr plays its role in promoting digital financial inclusiveness

3. Analyze existing opportunities and Potentials of implementing financial technology: Case of Telebirr

4. Analyze the current potential challenges of Telebirr (Financial technology) in the Ethiopian context.

Research Method

This study is a desk research project designed to study financial technology's role in increasing digital financial inclusiveness in Ethiopia. It thoroughly examined various works of literature. The research includes theoretical and empirical evaluation methodologies from multiple research works, papers, and other sources related to financial inclusiveness. When choosing articles, essays, and other important papers, one thing that was considered was how relevant the information in the articles was to the study's main goal. Conceptual and document analyses were carried out throughout the research project. This is because documents may take on various formats, making them an easily accessible and trustworthy source of data, including Findex. This research has significantly contributed to the literature on financial technology in Ethiopia.

Literature Review

Financial inclusiveness has recently received substantial attention from policymakers because of its significance in preserving employment, economic development, and financial stability. Financial access improves the climate for new company entrance, innovation, and development. Financial services accessibility remains a crucial constraint for policymakers in many countries. Three key factors influence whether or not a person is financially included or excluded: the location of financial companies, the ability to reach these locations, and the adoption of the services offered by financial organizations. Sarma and Pais (2008) argue that the financial inclusion mechanism ensures that all businesses have an equal opportunity to benefit from the formal financial system. It is possible to ensure everyone has access to essential services by strengthening financial inclusion. This would be done by promoting access to financial resources, financial literacy, and transparency.

There is a wide range of variations in the scope and magnitude of financial technology products, such as international money transfers, peer-to-peer lending, and credit risk monitoring. The impact of financial technology on people's access to financial services is investigated by Chishti and Barberis (2016), Salampasis and Mention (2017), and Appiah-Otoo and Song (2021). They think financial technology can have a major social effect in third-world countries by penetrating the bottom of the economic pyramid. The authors argue that for the unbanked and underbanked to have more prospects for social inclusion, they must be educated and made aware of the possibilities given by the financial sector via the internet and other ICTs.

Financial inclusiveness is crucial for improving the development and well-being of underprivileged people. It lets individuals protect themselves from natural calamities, smooth out income fluctuations, and access financing to expand their enterprises (Popescu, 2019). New financial technologies are fast altering the global economic and financial landscape in ways that might promote growth and alleviate poverty by fostering financial inclusion and maximizing the efficiency of financial systems. Siering et al. (2017) say that financial technology helps people access money because it is easy to use and doesn't cost much to make a transaction.

Financial inclusiveness

Distribution of financial institutions, availability of and access to those institutions, and use of those institutions' services are the three most important determinants of financial inclusion or exclusion. Sarma and Pais (2010) state that the formal financial system is accessible and usable by all businesses thanks to the financial inclusivity mechanism. Thus, financial inclusion may be widened to ensure that all members of society have access to fundamental financial products and services and raise knowledge of financial systems, access to information, and transparency. Even though this phrase helped guide this study, more research on financial inclusion and exclusion is needed to understand the idea fully.

Financial inclusion has been acknowledged for encouraging positive economic and social development advancements, including many of the Sustainable Development Goals, according to research published in 2018 by the Accion Center for Financial Inclusiveness. The study argues that newcomers to the formal financial system may benefit from measures like electronic payment of school fees or invoices. Knowing that the basic purpose of financial services is to motivate people to do more with their money, the concept of financial inclusion aims to better people's lives (Mlachila et al., 2016).

An inclusive financial system is one in which all members of society have reasonable access to a full range of financial services. Nonetheless, this depends on the level of success the region has had in achieving its social and economic goals while transforming (Mlachila et al. 2016). British speakers were the first to introduce the phrase "financial inclusivity" to describe the condition of having no barriers to accessing the bank accounts of about five million people. The term "financial exclusion" refers to a phenomenon that prevents low-income and other marginalized groups from using their country's formal financial infrastructure. Financial exclusion, as defined by Malachila et al. (2016), occurs when some segments of the population are unable to get access to conventionally provided financial services that are both affordable and safe. Many believe that the inability to access financial institutions is the root cause of financial exclusion in certain cultures (though this is not always the case). The term "financial inclusivity" refers to a group's efforts to broaden access to financial services for more people (Carbo et al. 2005).

A well-functioning financial inclusivity may provide everyone with accessible, low-cost, fair, and secure financial services and tools such as bank accounts, low-cost loans, assets, savings, and insurance payments; and convey standard financial education and advice to the general populace (Allen et al. 2016; Oji, 2015). There are, supposedly, rates of financial exclusion and inclusion in the literature. The term "financial inclusivity" was coined for this discussion to describe the process of making basic financial services and products more widely available and accessible while ensuring that all segments of society use them. Measures of financial inclusion and exclusion across all categories are calculated.

Demirgüç-Kunt and Klappe (2013) define financial inclusion as the widespread usage of mainstream financial services to improve people's lives. As defined by Sahay et al.l inclusion, financial inclusion is the widespread usage of mainstream financial services to improve people's lives. Financial inclusion, as defined by Sahay et al. (2015), is the provision of financial services to underserved populations as well as their ability to access and make use of such services. Financial inclusion was defined by many criteria (Sarma, 2012), one of which was that all participants in the economy have access to and make use of the official financial system. According to Ozili (2018), financial inclusivity is "the process of ensuring that all individuals have access to essential financial services via their participation in the official financial system." One definition of financial inclusion is "the process of ensuring that all members of the economy have access to, and use of, high-quality formal financial services" (Raza et al., 2019).

Inclusive finance is defined as the availability of access to various financial institutions, products, and services based on their needs and abilities to improve community welfare, as stated in Otoritas Jasa Keuangan Regulation No. 76/POJK.07/2017 on financial literacy and inclusiveness improvement action for consumers and the community. Quality, use, and well-being are three financial inclusion indicators (Bongomin et al., 2016). Makina's (2019) research shows that financial inclusion can help with inclusive development. Additionally, broader access to formal financial systems might encourage greater engagement by diverse economic sectors. As the formal financial sector's share of the economy grows, interest rates become the most important tool for keeping the economy stable. This, in turn, helps economies grow and develop quickly and efficiently.

According to TPB, business actors are more likely to be able to get access to financial resources when there are fewer restrictions placed on them by banks and other non-bank financial entities. A person's mentality, the impact of their social surroundings, and the strength of the motivations that drive their conduct toward financial institutions are all revealed by TPB. When all members of society can participate actively in the official financial system, we have achieved financial inclusivity (Ozili, 2018). If a corporation makes it easy and affordable for economic agents to have access to financing, it will see a significant uptick in business performance (Ibor & Offiong, 2017). His research concluded that the prosperity of MSMEs is significantly correlated with the extent to which their communities are financially inclusive. Businesses benefit greatly from the financial inclusivity policy.

Financial Technology (Financial technology)

There is a wide range of variations in the scope and magnitude of financial technology products, such as international money transfers, peer-to-peer lending, and credit risk monitoring. The following is a general classification of the services offered by financial technology companies: (i) services related to credit, deposits, and the raising of capital; (ii) services related to payments, clearing, and settlement, including digital currencies; (iii) services related to investment management; and iv services related to insurance. The growth of the financial technology industry varies significantly among regions and countries. Neenu and Hemalatha (2016) justified the concept of financial technology as first conceived by financial institutions to modernize and automate their business processes. According to Reed (2020), "financial technology" refers to the technology clients use throughout their interactions with financial institutions. According to Salampsis and Mention (2015), the term "financial technology" did not become popular until after the financial crisis of 2008, when customers lost their trust in the existing financial platform.

Financial technology, as defined by Arner et al. (2015), "represents the technological capacity to design and deliver novel financial solutions by combining financial services with information and communications technology." The authors believe financial technology may include finance and investments, financial operations and risk management, payments and infrastructure, data security and monetization, and the consumer interface. Chishti and Barberis (2016), Salampasis and Mention (2015), and Appiah-Otoo and Song (2021) each take a somewhat different approach to examining how financial technology affects the financial inclusion of the public. They hope financial technology will eventually trickle down to the poorest of the poor in emerging countries, which may have a profound social effect.

Financial Technology and Financial Inclusiveness

Improving account accessibility is crucial to addressing income disparities and poverty via financial inclusiveness. For instance, the empirical research conducted by Beck et al. (2006) demonstrates that nations with solid financial growth see less income inequality. Similarly, Swamy (2012) found that giving access to money becomes a requirement to control poverty and achieve economic growth.

Financial inclusiveness is crucial for improving the development and well-being of underprivileged people. It lets individuals protect themselves from natural calamities, smooth out income fluctuations, and access financing to expand their enterprises (Young & Ernst, 2017). Low-income families and small family enterprises need financial inclusiveness for saving, credit, transfer, remittance, and payment services, according to Seo et al. 's (2019) findings. Rapid advancements in financial technologies reshape the economic and financial environment worldwide and enhance inclusiveness in the financial world. Financial technology facilitates use & lower operational fees, promoting financial inclusiveness. Financial

technologies are critical facilitators of financial inclusiveness (Demir et al., 2020). Similarly, Financial technology products such as mobile financial services give a chance to disadvantaged adults.

Accessing financial services for consumers who do not use banks has become essential for participation in a society's economic and social life. Despite this, many people in a significant number of nations struggle to have access to vital financial services. The most prominent factors contributing to a failure to access the financial services are income shortages and lack of proximity to financial institutions and service providers (World Bank 2021). The poor world is not the only region negatively impacted by exclusion from the financial system. The solutions provided by financial technology businesses have the potential to be a game-changer in overcoming all of this. Those excluded from the banking system may find relief in the availability of alternative payment methods, such as digital payment accounts and solutions, remittance payments, and mobile-based cash payment accounts made possible by technological improvements.

Financial Technology Landscape in Ethiopia

As a result of recent changes to the applicable regulations, Ethiopia is now seeing an extraordinary acceleration of its digital transformation goal. The National Bank of Ethiopia announced new Payment instruments and instructions in March 2020. These changes allowed local non-bank players, such as mobile network providers, to provide mobile money services. Because of this tendency, there will be a dramatic shift in the market offers for digital financial services. Later, in June 2020, Ethiopia's Council of Ministers endorsed Digital Ethiopia 2025, a national digital transformation plan that embraces cutting-edge technologies to ensure economic growth and social development. This plan is intended to ensure that Ethiopia will continue to develop rapidly. Ethiopia's financial technology ecosystem is on the smaller side when weighed against the country's massive population and GDP. Despite this, the report indicates that Ethiopia's financial technology sector is well positioned for robust expansion due to the supportive stance taken by the government toward the digital economy and favorable market conditions. These conditions include high mobile phone penetration and a large population that is not banked.

Ethiopia's burgeoning financial technology scene presents a once-in-a-lifetime chance for business owners and investors. To a considerable extent, the country's weaker penetration levels relative to its East and Southern African neighbors prevent it from developing a fully-fledged digital financial services ecosystem. The UN Capital Development Fund (UNCDF) attributes this to the subpar performance of the mobile money ecosystem, which is a key factor in the adoption of digital financial services in the region. There is a strong link between mobile money and other digital forms of money in the area.

The government has recognized the opportunities presented by financial technology and has initiated efforts to expand its accessibility. In 2016, the Ethiopian government recognized financial inclusiveness for all as a strategic goal by ratifying the National Financial inclusiveness Strategy (NFIS). This indicates that the country is moving toward universal financial access. In addition, the National Bank of Ethiopia (NBE) revised legislation concerning the country's payment system in 2020. As a result of this amendment, international investors were finally allowed to establish enterprises in Ethiopia as suppliers of digital financial services.

The government of Ethiopia established the Digital Ethiopia 2025 national policy in 2020 as a component of its larger strategy for promoting economic growth. While the government has made strides toward digital transformation, it recognizes that it has not yet fully adopted or accepted these strategies.

While the government has made strides toward digital transformation, it recognizes that it has not yet fully adopted or accepted these strategies. "*Through a rigorous gap assessment, the plan delivers recommendations across the four core areas of (i) infrastructure, (ii) enabling systems, (iii) digital interactions, and (iv) digital ecosystem,*" states the strategic overview for 2025. These ideas have been chosen because they have the potential to catalyze the accomplishment of Ethiopia's larger development strategy, which includes the production of foreign currency, the creation of jobs, and the attainment of middle-income status by the year 2025. The implementation of digital technology in Ethiopia, similar to other national economic development initiatives, would assist promote job creation and future economic growth.
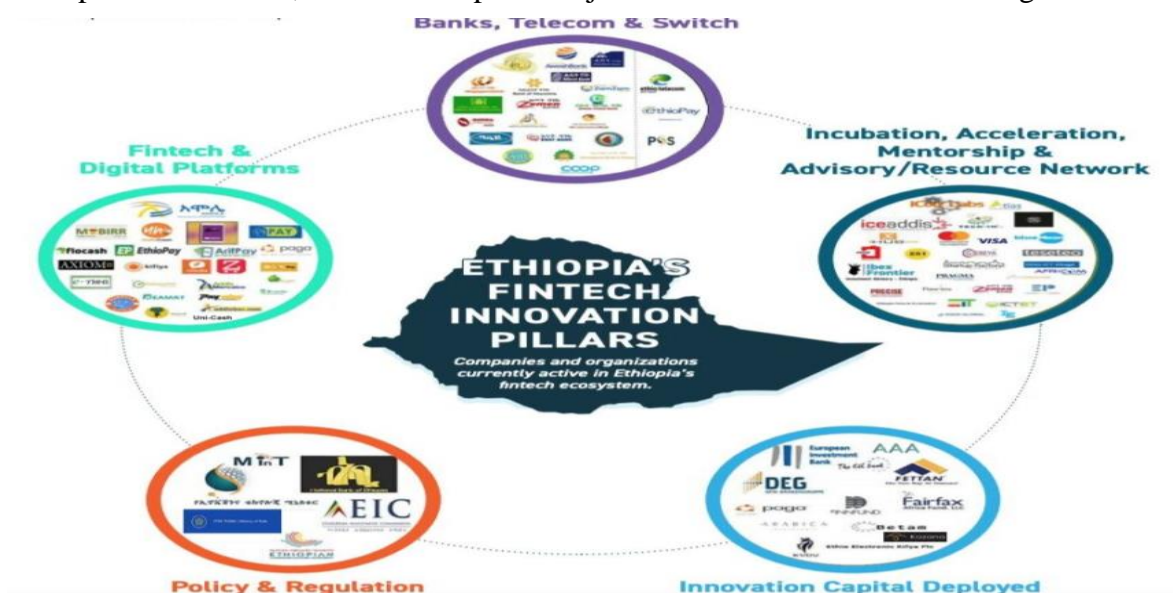
Figure 2: Financial technology Landscape in Ethiopia

Source: Santosdiaz, (2022)

Customers' increasing reliance on digital channels for banking indicates that banks have been more innovative in recent years. Visa and Mastercard, two of the world's largest payment processors, have formed ties with key Ethiopian banks, continuing a global trend toward financial technology alliances. Earlier this year, Zemen Bank and Mastercard announced they would work together to provide the first contactless prepaid travel card in Ethiopia. Additionally, the press release said that Zemen Bank would be the first in Ethiopia to provide Mastercard's contactless tap-to-pay service. Visa and Bank of Abyssinia announced a strategic partnership in 2020 to boost e-commerce in the country through the Visa CyberSource payment gateway, bringing the Bank of Abyssinia within Visa's global payments ecosystem. As a result of this partnership, businesses in Ethiopia may now take credit card payments online for the first time. Ethiopia's growth will be interesting to watch through 2025 and beyond as its digital environment becomes freer and it opens up to foreign direct investment (FDI).

Discussion

Digital Financial inclusiveness in Ethiopia

Despite the importance of inclusive economic growth, Ethiopia has not been able to attain financial inclusion. Compared to some of its neighboring nations, Ethiopia does poorly in terms of financial inclusivity since most of its people live without a bank account. Findings on the depth and breadth of Ethiopia's financial sectors and the penetration of financial services (Zins & Weill, 2016) suggest that the country is not as financially inclusive as some of its neighbors,

with most of its people not having access to a bank account. The following section discusses a few of the Ethiopian financial inclusion indicators.

Account Ownership

Figure 3 shows that less than half of Ethiopians have a bank account, a rate lower than any other east African nation analyzed, including Kenya. The majority use non-traditional lenders to get their money, which poses a risk to the conventional banking system. Also, compared to its counterparts, Ethiopia stands alone in its adoption and use of digital financial services. Regarding new bank account creation and digital financial inclusion, Kenya leads all East Africa. Even though digital financial services are important to the digital economy (Demirguc et al., 2018; Ghosh, 2016), rising mobile phone use and financial inclusion are good for household income.
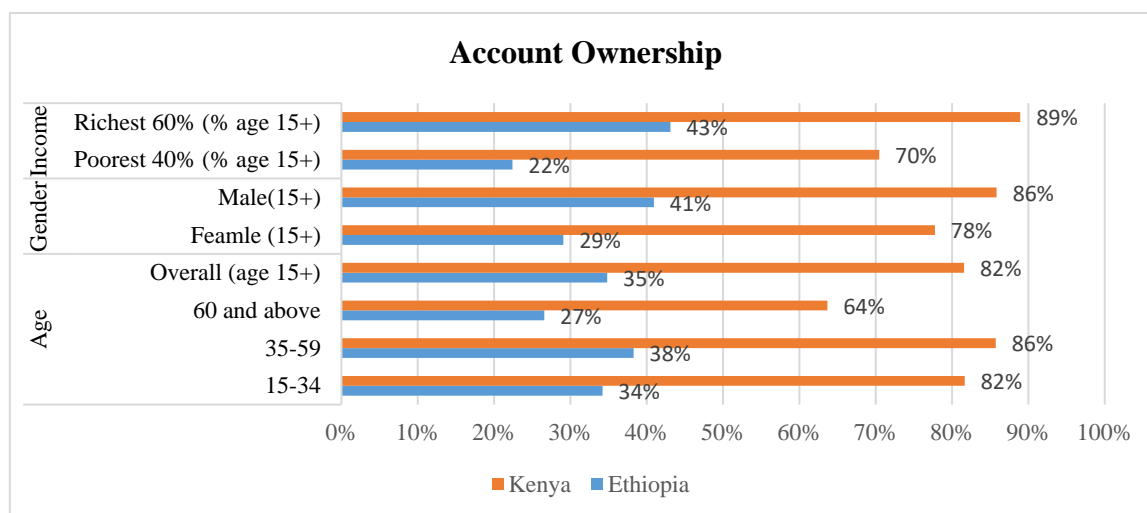
Figure 3: The status by ownership of bank account in Ethiopia

Source: Retrieved from Findex, 2022

Despite all efforts, Ethiopia has managed to address 35 percent of the population to have a mobile account. Similarly, 43 percent of wealthy people opened an account, while this figure declined to 22 percent among the poor community. Forty-one percent of males in Ethiopia have an account, while less than 30 percent of the female population have a bank account. When we see this figure from an age category perspective, all age groups have less than 40 percent account access in the country. This result shows that the other issue is income inequality and financial inclusiveness, which gathers attention in the country. According to the Global Financial index report, 43 percent of wealthy households have an account, while only 22 percent of low-income families have an account in the country.

Gender Gap

In addition, the gap is widening from time to time among different categories of society, including individuals' gender and economic status. Women have fewer accounts than men, which makes them disadvantageous. Regarding the gender gap (figure 4), Women lag behind men in digital payment and financial savings. Furthermore, for most measures, men's changes from the base year (2014) are greater than women. As a result, women have much less opportunity to have more comprehensive financial services than their counterparts.
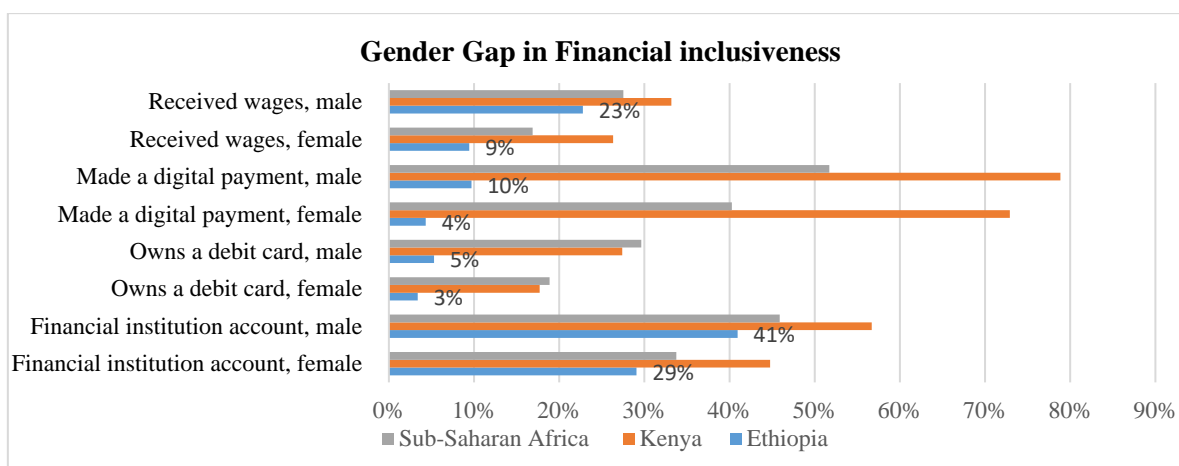
Figure 4: Gap Identification from a Gender perspective

Source: Retrieved from Findex, 2022

According to figure 4 above, men have 12% more account ownership than women in Ethiopia. Similarly, men are more advantageous in using electronic-based digital payment systems such as debit/credit cards. Statistical reports indicate that women are less advantageous than men in almost all financial inclusiveness perspectives, including digital payments. Only 9 percent of women in Ethiopia can receive their wages using a digital payment system, which is increased to 23% for men. From this analysis, the conclusion is that there is a founding difference between the two genders in the financial world.

Access to Digital Finance

Ethiopia's access to digital financial services is below 20 percent and lagged its neighbors and continent average. Figure 5 shows that almost 1 percent of Ethiopians use debit cards to process their financial transactions. The percentage of digital payment systems is less than 15 percent, while 18 percent of wages in the country are made through digital finance systems or account transfers. Technology has created many advantages for people worldwide; however, 3% or fewer account holders can use their cell phone applications or internet platforms in Ethiopia.
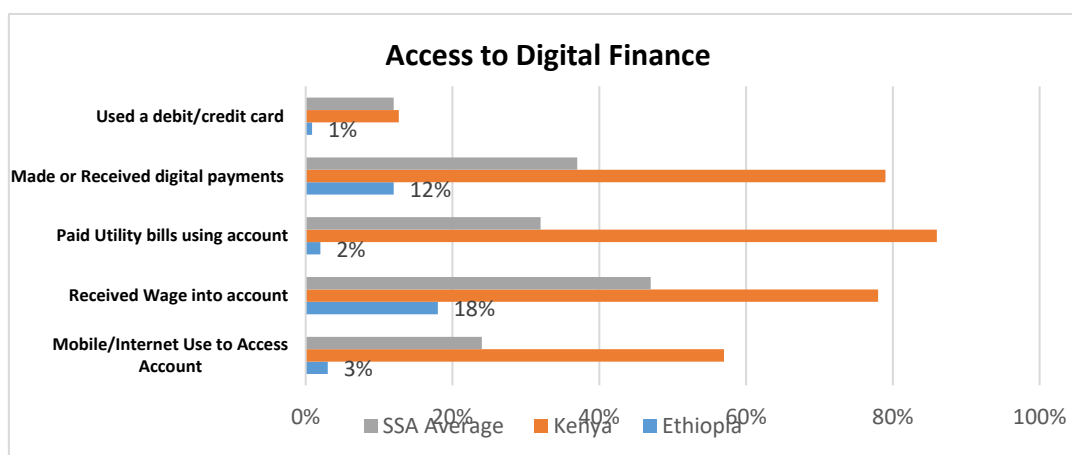
Figure 5: Access to Digital Finance

Source: Retrieved from Findex, 2022

Ethiopia has low levels of financial inclusiveness (Solomon and Cusack, 2020). Compared to the rest of SSA, Ethiopia's financial inclusiveness lags mostly in using digital finance. As a result, the Ethiopian government initiated an inclusive financial strategy at the

228

national level in 2017, intending to enhance financial inclusiveness throughout the country by regularly measuring the progress made in national financial inclusiveness (NBE, 2017). The strategy's primary goal is to raise account ownership from 29% in 2017 to more than 70% by 2025 and electronic payment from 6% in 2015 to 50% and above by 2025, emphasizing digital financial services to foster financial inclusiveness.

However, the aim was not met owing to various factors, including decreased economic development due to the current global health crisis, long-lasting internal conflict, job loss increase, and an inflation rate hike. Later in 2021, the government developed a new national digital payment strategy for 2021-2024. This strategy aims to boost digitalization in the financial platform. In addition, it aimed to address the disadvantaged areas (which banks and financial institutions do not address) using digital payment systems and digitalization.

The Importance of Telebirr in Advocating Financial inclusiveness in Ethiopia

In a country like Ethiopia, with a more rural population and low technology literacy, there are severe and complicated challenges to achieving the intended goals of conveniently providing financial technology products to the large unbanked population. Financial technology is a crucial business that significantly influences developing nations' development characteristics to improve financial inclusiveness. The increased use of mobile phones and the internet in the banking industry make financial services more accessible. Telebirr is a digital business platform that enables its clients to transact, pay utility bills, purchase airtime (top-up), and make foreign remittances through their mobile and Telebirr agent. Telebirr's mobile money service stands apart in part because it makes use of a common infrastructure. In this way, customers of different banks and MFIs may exchange services. More than 23 million people in Ethiopia use Telebirr's network of 9000 agents to send and receive money.

Telebirr Improves Banking Sector

With the establishment of telebirr platforms, different government and private commercial banks integrated their banking system with the platform to serve their clients more advanced way. As Figure 6 shows, fourteen commercial banks currently use the telebirr platform to reach their customers. Some of these banks are Dashen bank, Nib bank, Wegagen bank, Hibret, Awash, Zemen, Abay, Oromia, Enat, Abyssinia, Berhan, CBE, and Buna bank.
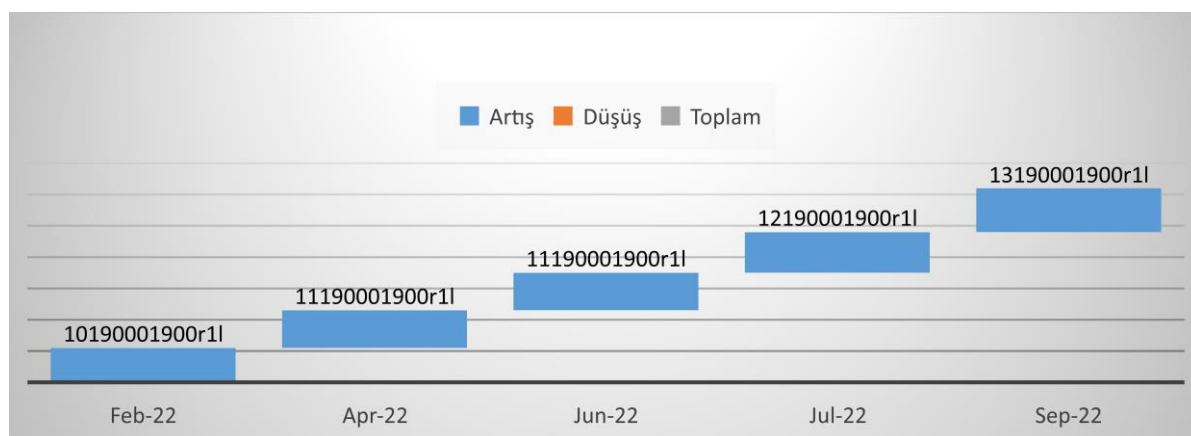
Figure 6: Bank Involvement in Telebirr Transaction

Source: Retrieved from telebirr, 2022

All the banks have their telebirr account processing system in SMS, website, and mobile application forms. More than 20 million customers currently use telebirr platforms to transact through these fourteen banks in Ethiopia.

Telebirr has addressed more than 23 million people in less than two years

Over 23 million people in Ethiopia use the telebirr platform to send/receive money, pay bills, and receive/send international remittances across the country. Figure 7 shows how tremendously telebirr has managed to sign more than 20 million subscribers since its inauguration in April 2021.
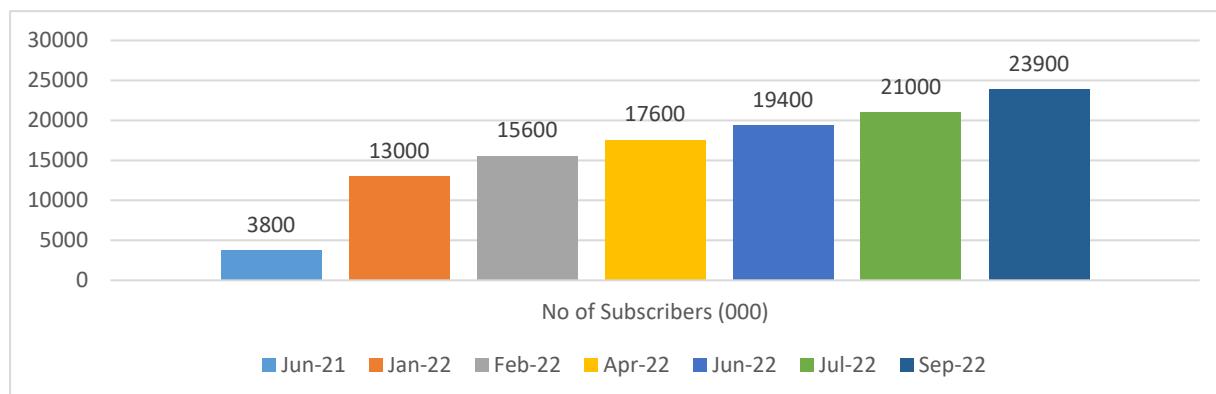
Figure 7: Number of Subscribers for Telebirr

Source: Retrieved from telebirr, 2022

The above figure shows that telebirr recorded a 10% average growth in addressing and creating digital customers in the financial world. Currently, 20 percent of the Ethiopian population has a telebirr account. This indicates that telebirr has increased financial access by 20% within less than two years. If it continues like this, it will address more than 50 percent of Ethiopians in the next five years.

Telebirr has Mobilized Billions of ETB in the Country's Economy

Since its launch in April 2021, telebirr has managed to mobilize billions of Ethiopian birr, significantly impacting the country's GDP. The following figure 8 shows the financial transaction flow record of telebirr for the last 16 months.
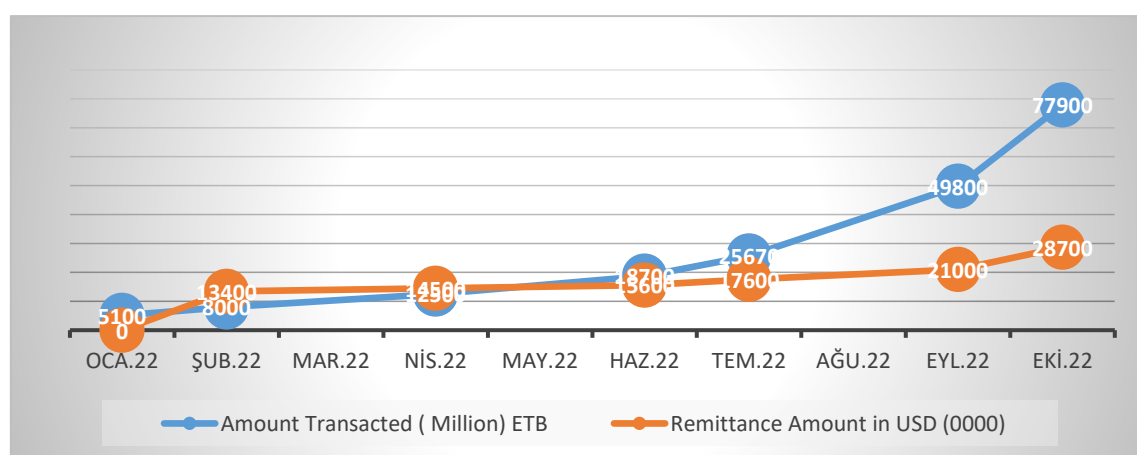
Source: Figure 8: Financial Flow of Telebirr

Retrieved from telebirr, 2022

Telebbir has transacted more than 77 billion ETB domestically until the last month of October 2022. Likewise, more than 28 million USD has been transferred to Ethiopian accounts through eight international remittance companies collaborating with telebirr. This means that 1,4% of the country's GDP. This is a very significant figure to consider. In this regard, telebirr

plays a considerable role in including more communities in the Ethiopian economy through the digital financial system.

Telebirr is creating job and Business Opportunities

In addition to its shops, telebirr uses agents and merchants around the country to interact with its clients. The following figure (9a and 9b) indicates that telebirr has recruited more than 23 thousand merchants and 82 thousand agents across the country to serve its customers. The responsibility of these agents and merchants is to attract and sell telebirr products, convince and help customers to open telebirr accounts, and pay and receive payments using telebirr platforms. This indicates that telebirr creates an employment opportunity for hundreds of thousands in the country and opens a business line for thousands of businesspeople and individuals.
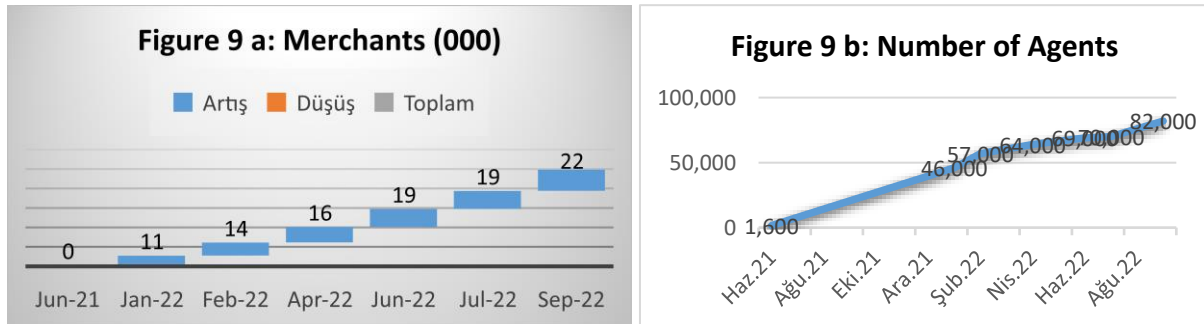
Source: Retrieved from telebirr, 2022

Furthermore, telebirr provides credit services for individuals and SMEs to expand or support their businesses. Currently, more than 10 thousand SMEs get a credit service while hundreds of thousands of public and private company employees are getting a short-term credit service (mela and Endekise account). This can be a credential way of addressing the disadvantaged parts of society who face short of finance and would not be able to access it from existing financial institutions. In addition, telebirr has a saving account (Sanduq) platform that will pay interest to depositors. The saving account platform has both interest-bearing and interest-free accounts for all customers. Therefore, we can conclude that telebirr significantly promotes financial inclusiveness and addressability in Ethiopia.

Opportunities and Potentials of implementing Financial technology in Ethiopia: Case of Telebirr

The bulk of those financially excluded include women, youth, those with less income and education, or none. Digital technologies provide cheap methods for these groups. Expanding access to financial services, financial inclusiveness, strengthening financial markets, and improving global payment and remittances are among the many far-reaching advantages of financial technology. Some of the opportunities of financial technology in the Ethiopian context that telebirr can be benefited from are discussed below.

Expanding account ownership opportunities

According to the states (NBE, 2019), a bank account might be useful for managing finances. Keeping track of your spending habits and developing a workable savings plan may be facilitated by reviewing your account statements. Those with lower incomes or who have been historically marginalized have more difficulty gaining access to official financial services. This includes women, young people, and those living in rural areas.

If the results (Desalegn & Yemataw, 2017) are true, being a woman, living in a rural area, having a low income, and not having a lot of education are all things that might make it less

likely for someone to use the formal financial system. As a result, recognizing and overcoming the decisive factors that prevent adults from opening an account is critical to progress toward financial inclusiveness.

Enabling the use of financial technology products

Payment systems are critical to financial inclusiveness, economic growth, and the operation of the real economy since they offer the necessary infrastructure for money to move through any economy. Traditional inefficient payment methods have historically been a substantial obstacle to economic development in many underdeveloped nations (Arner, 2018). Even though financial technology is a relatively new term, according to the BIS (2020) study, innovation has shaped the development of payment services. It has functioned as a driver of payment system transformation. In addition, Lakew and Azadi's (2020) findings emphasized the relevance of technological advancements in financial services (e.g., electronic money, especially mobile money) in facilitating the availability and use of transaction accounts. Similarly, Baza and Rao (2017) say that existing digital payment infrastructures need to be updated, and new delivery models need to be made so that more people can use traditional payment instruments and items.

According to the central bank of Ethiopia's 2019 annual report, the recently started "Home Grown Economic Reform Program" is meant to create a modern, dynamic, competitive, and sound financial system and increase access to finance and financial inclusion. This is the expectation based on the assumption that effective program implementation will result in the program's launch. Ethiopia is one of the 89 developing countries that currently provide mobile money services (Naghavi et al., 2014). Therefore, making financial technology products accessible and enhancing digital infrastructure will allow low-income individuals and society access personalized financial products and services.

Expanding the use of financial technology products

Enhancing the well-being of finance and providing more financial assets to assist development via economic inclusiveness may be possible if access is made more accessible, enabling mechanisms are developed, and existing use infrastructure is expanded (Arner, Buckley, Zetzsche, & Veidt, 2020). Furthermore, Hasan and Batra (2018) and NBE (2019) suggest that digitization enhances economic (financial) inclusiveness to the majority, which was excluded from existing financial services. This is because digitalization makes it easier to access and use financial information. Moving away from cash and toward digital transactions can provide three primary benefits: a reduction in leakage, the elimination of deceptive payment practices, and a reduction in expenses of paying for the government (Zins & Weill, 2016). There are several studies conducted regarding the use of financial technology in developing nations (Ayele, 2015).

New government regulations

A new regulation has been distributed by the National Bank of Ethiopia (NBE). The order makes it possible for firms specializing in financial technology, such as those in the telecommunications industry, to participate in the Ethiopian market by providing essential financial services, such as mobile money. It might lead to expanding mobile money services for the population with the greatest number of unbanked persons. In addition, the National Financial inclusiveness Strategy (NFIS) has a lofty objective. This objective is one of the most important possibilities for the government to demonstrate its commitment to the transition toward digital banking. Digitalizing financial services is one of the main focuses of Ethiopia's

National Financial Inclusiveness Strategy (NFIS), which aims to increase the percentage of adults who use electronic payment systems (NBE, 2019).

There is a Huge Market Potential

Ethiopia has a sizable adult population that is mostly unbanked, making the country an attractive investment destination. The needless rush to switch to mobile platforms is mitigated by the widespread availability of ATMs in major cities. Individuals widely use conventional saving and payment methods in rural areas, and there is a strong need for accessible financial services. According to the World Bank's Financial Inclusion Support Framework, Ethiopia is one of the 25 nations where 73% of the world's financially excluded population resides. International investment in Ethiopia's financial technology sector also surpassed $28 billion in 2019. (Financial Technology Addis, 2020) This is fantastic news for the expansion of digital financial services everywhere, especially in developing countries where the percentage of individuals who lack bank accounts is highest.

Online banking transactions in 2019–20 was ETB 15 billion ($290 million), up from ETB 1.8 billion ($25 million) the previous year, demonstrating steady growth in popularity since 2017–8. Despite this, 98% of all transactions still occur in cash, and 81% of those who need cash get it through a bank. It seems like Ethiopia might be quite successful. The value of all digital payments processed this year is projected to be close to $1.5 billion ($1.485 billion). Also, the number of users is expected to get close to 48 million by 2026, and the revenue from digital investments is expected to grow by more than 40% in 2023.

Banking Sector is Innovating in Digital

The banking industry may be off-limits to foreign investors. Still, it is making up for it by providing its customers easy access to mobile and agent banking services in various languages. Some of the agent banking solutions made available by multiple financial institutions, including "*HelloCash, M-BIRR, Kifiya, YenePay, and CBE Birr*," make it possible to get monetary assistance in several different tongues. At agent outlets, customers may carry out routine operations such as paying bills, topping up airtime, transferring money to another person or institution, managing their accounts, depositing, and withdrawing cash, and more.

Ethiopian Financial Technology Challenges and Criticism

Highly Controlled Financial Regulations

The restriction banning nationals and diaspora Ethiopians from owning banks and payment service providers harms FDI inflows and significantly impacts knowledge inflows. The value proposition may be undesirable if international corporations entering Ethiopia cannot provide mobile banking services. While legislation exists for specialized payment service provider licenses, none have been issued. The lack of interoperability across all bank accounts, particularly mobile bank accounts, limits the availability of use cases and reduces acceptability. The credit quality of bank loan portfolios has deteriorated, especially those sensitive to tourism, trade, and transportation.

Strict central bank rules and the dominance of state-owned banks with low competition are numerous factors inhibiting the adoption of financial inclusivity. Examples of this include the fact that financial technology activities were restricted to partnerships with banks or microfinance organizations until the introduction of new legislation preventing financial institutions from performing monetary transactions. In contrast, fintech companies need independence to function without a bank as a partner. In this respect, Telebirr is no different

from any other financial technology firm in terms of the seamless functioning of its digital financial activities.

Problems in Connectivity

The Ethiopian Telecommunications Corporation (ETC) is the country's only telecommunications operator and a crucial support system for the country's burgeoning information technology sector. With regards to providing communication services, however, Ethiopia lags its neighbors.

According to the 2017 ICT Development Index (IDI) published by the UN International Telecommunication Union (ITU), Ethiopia's service ranks 170 out of 176 countries (ITU, 2017). Despite this expansion, as of October 2022, Ethio Telecom only claimed 48.5 million data and 31.8 million internet customers. Ethiopia's communications industry is experiencing drastic changes, but it's not meeting financial technology needs. First, the communication infrastructure lacks service variety, quality, reach, price, and customer service.

Second, financial technology providers depend on a single operator with top-down partnership regulations. Leading Financial technology providers don't network operators; thus, they don't control their most crucial improvement factor. The present telecom operator sees financial technology as a prospective rival, which might confuse the service provider's mindset and competitive impulses. The current telecom infrastructure wasn't equipped to fuel financial technology initiatives and wasn't actively helping financial technology businesses' attempts to digitize financial services. This is hampering the nation's digital money efforts.

Low Digital Literacy Rate

Awareness and financial literacy are problems that need to be solved before financial technology can make banking accessible to the unbanked (for a more in-depth examination, see Sági et al., 2020). Most individuals living in rural areas can utilize their cell phones to access financial services if investments are made to improve financial literacy. As of 2017, 70 percent of individuals have only completed elementary school or less, and 68 percent of rural populations cannot open a bank account. As a result of this, there is a significant demand gap that must be filled. But the fact that such a large proportion of the population lives in rural regions (more than 80 percent) and only a tiny fraction of people has access to 3G service would be difficult (IFC, 2018).

Trust: The Future Challenge in Financial technology

Similarly, in the attempt to create a deeper financial technology revolution, Security problems are increasingly dragging development. Financial technology businesses must persuade consumers not to lose confidence due to data mining, digital tracking, and technical product and service preferences recovery. The effect of financial technology innovations and transformations results in financial services working in distinct ways like those witnessed previously. Large financial organizations have handled clearing float in bank checking operations, transferring monies between client accounts, and starting and maintaining regular accounts in the past and present. Many of us have seen financial technology technologies change financial service management.

The back-office systems perform more tasks that handle digital financial transactions than front-office people-based conventional financial transaction administration. Financial service companies seek openness about how client data will be utilized. They demand strong customer data security. Banks and Financial technology businesses may have user data. Strong security and privacy policies are vital since one error may undermine the brand. Financial technology

businesses must invest in data-safety technologies. Privacy issues weaken confidence and hurt consumer experience.

High Service Charge and Undefined Interest Rate

Most financial institutions in Ethiopia lend money with an interest rate between 9 percent and 17 percent. This figure is considered high, while inflation in the country is at its extreme. Comparing Telebirr's service charges with the existing lending rate in Ethiopia, it looks like telebirr is providing reasonable charges for credit services. However, the target customers for the credit system (Endekise) are low-income individuals and SMEs. For these kinds of clients, a six percent service charge is high and unaffordable. In this regard, it will be challenging to provide credit services for all kinds of individuals who have limited economic status. On the other hand, telebirr has failed to define the interest rate (amount) in its deposit (Sanduq) platform. This creates confusion and discomfort for depositors.

Muslim Excluded Credit and Savings System

The Muslim community is another issue that telebirr fails to address regarding financial inclusiveness. Apart from the ordinary financial technology services provided, credit services do not consider Islamic finance perspectives. This means that Muslim communities cannot borrow money to expand their businesses because of the interest factor. This will make the Muslim community excluded from this financial technology service.

Weak Financial Network

Financial technologies need suitable network advancements to run well. Traditional financial networks must be reorganized to use financial technology benefits. Interoperability of networks, realistic business cases, innovative marketing/education, use case adaption, and FI capacity development may boost Ethiopia's financial technology network expansion. Significant efforts have been made to boost financial technology network development with little results. Network designs should be regarded as financial technology product developments and demand market-based/homegrown tactics above global standards modification.

Conclusions and Policy Recommendations

This paper examines the impact of financial technology on financial inclusiveness in Ethiopia. The study was conducted using telebirr as a case study. Financial inclusiveness implies access to formal financial products such as digital credit, digital payments, mobile money transactions, and mobile banking using digital phones and computers. Financial technology is expected to replace gaps in payments and loans, mainly when conventional financial service delivery is unavailable. Ethiopia's most prominent barriers to financial inclusiveness are a problem to access to finance and financial institutions' failure to address all areas in the country. In Ethiopia, financial inclusiveness performance is below average compared to East African states and the Sub-Saharan African average.

There has been a significant increase in the percentage of adult Ethiopians who have an account with a formal financial institution, with 35% now doing so. However, as of now, 65% of the population has no bank account access. More crucially, the results show a large gap in people's access to bank accounts based on gender, age, socioeconomic status, and degree of education. As a result, males, adults, the well-educated, and the wealthy are more likely to be financially inclusive. A lack of funds, an inconvenient location, the absence of required documentation, or the presence of another account holder in the household is typical explanations for why an individual does not have a bank account. That's why authorities must work to close the current account ownership inequalities. These differences could be lessened

by slowing the rise of unemployment and inflation, speeding up economic growth and investment, and making it easier for businesses to do their work.

Telebirr is playing a significant role in promoting financial inclusiveness in Ethiopia. The study found that more than 16 banks have integrated their financial system with a telebirr platform. In addition, more than 23 thousand merchants and 82 thousand SMEs get an opportunity to provide telebirr services, creating a huge employment opportunity across the country. In addition, telebirr has managed to mobilize more than 77 billion ETB so far by serving more than 23 million customers in the country. Telebirr also becomes a means for international remittance, which is critical for the Ethiopian economy.

There are plenty of opportunities in the financial technology industry that could help telebirr to expand and improve its operation. Some of these are the number of account owners improving, financial technology products increasing thoroughly, and financial technology supporting regulations being launched. The market has a high potential to explore. Similarly, financial institutes invest more in the financial technology sector and link their business with telebirr.

The challenging side of this financial technology company is (i) high government controls and interferences, (ii) lack of adequate infrastructure, lower digital literacy rate, lack of trust, weak financial networks, and the ignorance of Muslim customers that can exclude them from the system.

Broadening financial inclusion can be achieved through measures such as improving connectivity, increasing access to financial services, and fostering digital literacy through the expansion of telecom infrastructure, the provision of financial literacy with a variety of partners, and the digitalization and interconnection of MFIs. Additionally, the central bank should encourage the launch of innovative financial organizations. Above all else, it would pledge to provide the foundation for a shift from traditional to digital financial services. Also, the fact that the government is considering opening the financial sector to foreign financial institutions and financial technology enterprises is great news for Ethiopians since it might lead to better services being made available to them.

Ethiopian telecommunication corporation sees financial technology businesses as prospective competitors, which might be challenging to distinguish between the service provider mindset and competitive impulses. As a result, the current telecom facility was not only equipped to drive its financial technology ambitions for a long time. Still, it was not actively assisting financial technology businesses' attempts to digitize financial services successfully. This is impeding the nation's efforts to enhance the digital financial industry. Telebirr, on the other hand, should collaborate with other financial technology firms and institutions to assist and establish an inclusive digital environment in the financial sectors. Because of the proliferation of mobile technology, developing nations may catch up to industrialized countries' present level of financial inclusiveness by 2025.

Telebirr must do more to reassure its customers that their preferences will be respected when their data is collected, recorded, and retrieved digitally. The progress and revolution in financial technology have caused significant changes in how the financial services industry functions. As a result, telebirr should be more forthcoming with their consumers about their financial data processing system. Financial technology firms may have access to comprehensive user information. Strong security and privacy measures are essential since a single blunder may tarnish the brand. Financial technology firms must invest in technology that keeps data secure and within the user's control. When privacy issues develop, trust erodes, and the consumer experience suffers significantly.

REFERENCES

Abro, Z. A., Alemu, B. A., & Hanjra, M. A. (2014). Policies for agricultural productivity growth and poverty reduction in rural Ethiopia. World Development, 59, 461-474. https://doi.org/10.1016/j.worlddev.2014.01.033

Allen, F., Demirguc-Kunt, A., Klapper, L., & Martinez Peria, M. S. (2016). The foundations of financial inclusion: Understanding ownership and use of formal accounts. Journal of Financial Intermediation, 27, 1-30. https://doi.org/10.1016/j.jfi.2015.12.003

Andrianaivo, M., & Kpodar, K. (2012). Mobile phones, financial inclusiveness, and growth. Review of Economics and Institutions, 3(2). https://doi.org/10.5202/rei.v3i2.75

Appiah-Otoo, I., & Song, N. (2021). The impact of financial technology on poverty reduction: Evidence from China. Sustainability, 13(9), 5225. https://doi.org/10.3390/su13095225

Appiah-Otoo, I., & Song, N. (2021). The impact of ICT on economic growth comparing rich and poor countries. Telecommunications Policy, 45(2), 102082. https://doi.org/10.1016/j.telpol.2020.102082

Arner, D. W., Barberis, J. N., & Buckley, R. P. (2015). The evolution of financial technology: A new post-crisis paradigm? SSRN Electronic Journal. https://doi.org/10.2139/ssrn.2676553

Baza, A. U., & Rao, K. S. (2017). Financial inclusion in Ethiopia. International Journal of Economics and Finance, 9(4), 191. https://doi.org/10.5539/ijef.v9n4p191

Beck, T., Demirgüç-Kunt, A., & Levine, R. (2006). Bank supervision and corruption in lending. Journal of Monetary Economics, 53(8), 2131-2163. https://doi.org/10.1016/j.jmoneco.2005.10.014

Berhanu Lakew, T., & Azadi, H. (2020). Financial inclusiveness in Ethiopia: Is it on the right track? International Journal of Financial Studies, 8(2), 28. https://doi.org/10.3390/ijfs8020028

BIS. (2020, September 22). Financial technology and big tech credit: A new database. Bank for International Settlements. https://www.bis.org/publ/work887.htm

Buchak, G., Matvos, G., Piskorski, T., & Seru, A. (2017). Financial technology, regulatory arbitrage, and the rise of shadow banks. https://doi.org/10.3386/w23288

Carbó, S., Gardener, E. P., & Molyneux, P. (2005). Financial exclusion in the US. Financial Exclusion, 82-97. https://doi.org/10.1057/9780230508743_5

Chishti, S., & Barberis, J. (2016). The FINANCIAL TECHNOLOGY book: The financial technology handbook for investors, entrepreneurs, and visionaries. John Wiley & Sons.

Cihák, M., & Demirgüç-Kunt, A. (2013). Rethinking the state's role in finance. Policy Research Working Papers. https://doi.org/10.1596/1813-9450-6400

Demir, A., Pesqué-Cela, V., Altunbas, Y., & Murinde, V. (2020). Financial technology, financial inclusion, and income inequality: A quantile regression approach. The European Journal of Finance, 28(1), 86-107. https://doi.org/10.1080/1351847x.2020.1772335

Demirguc-Kunt, A., Klapper, L., & Singer, D. (2017). Financial inclusiveness and inclusive growth: A review of recent empirical evidence. https://doi.org/10.1596/1813-9450-8040

Demirguc-Kunt, A., Klapper, L., Singer, D., & Ansar, S. (2018). The global Findex database 2017: Measuring financial inclusion and the Financial technology revolution. World Bank Publications.

Demirgüç-Kunt, A., Klapper, L., Singer, D., & Ansar, S. (2022). The global Findex database 2021: Financial inclusiveness, digital payments, and resilience in the age of COVID-19. World Bank Publications.

Desalegn, G., & Yemataw, G. (2017). Financial inclusion in Ethiopia: Using LSMS (Ethiopia socioeconomic survey) data. Ethiopian Journal of Economics, 26(2), 31-58

Dinku, T. (2021). Financial inclusiveness in Ethiopia: Using core set of financial inclusiveness indicators. The International Journal of Social Sciences and Humanities Invention, 8(03), 6396-6404. https://doi.org/10.18535/ijsshi/v8i03.01

Elzahi Saaid Ali, A. (2022). Empowering women through Islamic financial inclusiveness in Comoros. Empowering the Poor through Financial and Social Inclusion in Africa, 49-72. https://doi.org/10.1007/978-3-031-00925-9_4

Ernst and Young. (2017). EY US - Building a better working world. https://www.ey.com/Publication/vwLUAssets/EY-innovation-in-financial-inclusion/%24FILE/EY-innovation-in-financial-inclusion.pdf

Financial technology Addis. (2020, November 11). Financial technology Addis Exhibition & Forum | The premier Digital banking and financial technology expo. https://financial technologyaddis.com/

Fuster, A., Plosser, M., Schnabl, P., & Vickery, J. (2018). The role of technology in mortgage lending. https://doi.org/10.3386/w24500

Gomber, P., Koch, J., & Siering, M. (2017). Digital finance and Financial technology: Current research and future research directions. Journal of Business Economics, 87(5), 537-580. https://doi.org/10.1007/s11573-017-0852-x

Ina Ibor, B., Offiong, A. I., & Mendie, E. S. (2017). Financial inclusion and performance of micro, small and medium scale enterprises in Nigeria. International Journal of Research - GRANTHAALAYAH, 5(3), 104-122. https://doi.org/10.29121/granthaalayah.v5.i3.2017.1758

Makina, D. (2019). Extending financial inclusion in Africa. Academic Press.

NBE. (2019). National Bank. https://nbebank.com/wp-content/uploads/pdf/annualbulletin/Annual%20Report%202019-2020.pdf

Oji, C. K., & South African Institute of International Affairs. (2015). Promoting financial inclusion for inclusive growth in Africa.

Okello Candiya Bongomin, G., Ntayi, J. M., Munene, J. C., & Nkote Nabeta, I. (2016). Social capital: Mediator of financial literacy and financial inclusion in rural Uganda. Review of International Business and Strategy, 26(2), 291-312. https://doi.org/10.1108/ribs-06-2014-0072

Ozili, P. K. (2018). Impact of digital finance on financial inclusion and stability. Borsa Istanbul Review, 18(4), 329-340. https://doi.org/10.1016/j.bir.2017.12.003

Popescu, A.-D. (2019). Empowering Financial inclusiveness through Financial Literacy. IOSR Journal of Business and Management, 6(2), 198–215. https://doi.org/10.9790/487x-16954548

Raza, S. A., Shah, N., & Ali, M. (2019). Acceptance of mobile banking in Islamic banks: Evidence from modified UTAUT model. Journal of Islamic Marketing, 10(1), 357-376. https://doi.org/10.1108/jima-04-2017-0038

Reed. (2020). Just a moment... Just a moment... https://www.reedsmith.com/en/perspectives/2020/11/comparative-guide-on-financial technology

Sahay, M., Allmen, M. E., Lahreche, M., Khera, P., Ogawa, M., Bazarbash, M., & Beaton, M. (2020). The promise of Financial technology: Financial inclusiveness in the post-COVID-19 era. International Monetary Fund.

Salampasis, D., & Mention, A. (2018). Financial technology: Harnessing innovation for financial inclusiveness. Handbook of Blockchain, Digital Finance, and Inclusion, Volume 2, 451-461. https://doi.org/10.1016/b978-0-12-812282-2.00018-8

Salampsis and Mention. (2015, March 17). Financial technology (Financial technology): Its uses and impact on our lives. Investopedia. https://www.investopedia.com/terms/f/financial technology.asp

Santosdiaz, R. (2022, July 4). The financial technology landscape in Ethiopia in 2022. The Financial Technology Times. https://thefinancial technologytimes.com/financial technology-landscape-in-Ethiopia-in-2022/

Sarma, M., & Pais, J. (2010). Financial inclusion and development. Journal of International Development, 23(5), 613-628. https://doi.org/10.1002/jid.1698

Seo, E., & Yoo, K. (2020). undefined. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.3817243

Soumare, I., Tchana Tchana, F., & Kengene, T. M. (2016). Analysis of the determinants of financial inclusion in central and West Africa. https://doi.org/10.1596/26005

Swamy, V. (2012). Does government intervention in credit deployment cause inclusive growth? Evidence from Indian banking. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.2126807

World Bank. (2021). Access to finance | Gender toolkit. https://digitalforwomen.worldbank.org/access-finance

Zins, A., & Weill, L. (2016). The determinants of financial inclusion in Africa. Review of Development Finance, 6(1), 46-57. https://doi.org/10.1016/j.rdf.2016.05.001

A Study On Dısabılıty And Employment Of Dısabled People: The Case Of Türkiye

Ö. Sarı[1]
N. Özbek[2]

Introduction

Disability and the phenomenon of disability have an important place in society. The reason for this is that with the number of disabled people increasing every year in the world, the need to improve the well-being and living standards of disabled individuals is quite effective. In addition to the policies necessary to improve living standards and ensure well-being, the need for disabled individuals to realize themselves is an important and essential issue to examine. In order to meet this need, disabled individuals must participate in production and employment opportunities must be increased. Some models are also produced that aim to integrate disabled people into society by increasing their participation in working life. However, many studies show that the participation of disabled people in business life is quite weak. In the report "European Disability Strategy 2010-20: A Renewed Commitment for a Barrier-Free Europe" published by the EU Commission in 2010, it was observed that although one in every six people in Europe is disabled, the participation rate of disabled people in business life, that is, employment, is quite low. In today's world, where unemployment means poverty and lack of income, the fact that disabled individuals are not employed and remain unemployed drags them into poverty. According to the commission report, the poverty rate among disabled people is 70% above the average. In Thornton and Lunt's analysis of the unemployment rate of disabled people, it was observed that there were differences between the disability definitions and criteria used, but despite this, the unemployment of disabled individuals was three times higher than the unemployment of non-disabled individuals.

In Turkey, the situation does not seem to be in favor of disabled people. In the Turkey Disability Survey conducted by TÜİK in 2002, it was revealed that 78.29% of the disabled population did not participate in the workforce at all, and this reached 93.29% for women. Another study states that Turkey is three times behind the world average in the employment of women with disabilities. In the "Problems and Expectations of Disabled People" research conducted by TÜİK in 2015, it was determined that 86% of disabled people do not work in any job.

Working not only enables the individual to survive biologically, but also ensures the necessary satisfaction from life and the individual's more effective participation in social life. For this reason, disabled individuals as well as non-disabled able-bodied individuals have the right to participate in working life and realize their social functions. It is very important for them to achieve this. While there are obstacles even for healthy individuals in participating in business life, the situation poses more problems for disabled people. There are some social institutions and organizations to overcome this problem. As examples, the Ministry of Social Services, disabled associations, health institutions, media elements and NGOs play a leading role.

[1] Prof.Dr. Sinop Üniversitesi Fen Edebiyat Fakültesi Sosyoloji Bölümü.
[2] Doç.Dr. Ankara Üniversitesi Siyasal Bilgiler Fakültesi Siyaset Bilimi ve Kamu Yönetimi.

Social workers who work in the field of employment of disabled people play important roles in ensuring that institutions and organizations are more effective in society and that disabled people can benefit from the opportunities provided. The main roles of the social worker are to create job opportunities for disabled people who need assistance and employment and to help disabled people access these opportunities. While doing this, use media organs effectively, lead in the creation of social policies, undertake an educational role in raising the awareness of other professional groups working on the employment of disabled people, provide services such as accommodation, clothing, transportation, etc. It plays a critical role in meeting basic needs.

Concept and Types of Disability

Society consists of physically, psychologically and economically different individuals. Despite this complex structure of society with different characteristics, people often seem to live in harmony. In this harmony, people who differ from individuals who are considered to be "normally developing people" may become disadvantaged in society. It is seen that this situation is sometimes called disability, sometimes handicap, and sometimes handicap in society.

Disability has been defined in different ways in the texts of national or international organizations. In the dictionary of the Turkish Language Association, the word disabled is defined as "a person who has a disability or has a deficiency or defect in his/her body" (Turkish Language Association - TDK, 2005). In the Declaration of the Rights of Disabled Persons adopted by the United Nations General Assembly, "those who, unlike normal people, cannot do the tasks that they need to do on their own in their social life due to a hereditary or acquired disability in their physical and mental abilities" are defined as disabled people (Declaration, 2008). is defined. In another definition, emphasizing the aspect of disability originating from society, disability is expressed as "the disadvantages or limitation of activities caused by a contemporary social order that does not take into account people with disabilities or takes them into account very little and therefore excludes them from mainstream social activities" (Kızılkaya, 2016). , p. 45).

According to the results of the research conducted by the Turkish Statistical Institute; It has been determined that 2.58% (1.8 million) of the 8,431,937 million disabled people living in Turkey have orthopedic, visual, hearing, language and speech and mental disabilities. Additionally, 9.70% of individuals living in Turkey (6.6 million people) have a chronic disease. According to this research, disability groups are listed as follows (Çakmak, 2006, p. 55).

-Orthopedic Disability

-Visual Impairment

-Hearing-Speech Impairment

- Diseases

-Mental Disability

-Other Disability Groups

Disability occurs and occurs due to some reasons. Disability can be in the form of congenital disability, or it can be seen as disability encountered during birth or disability resulting from dysfunction that occurs as a result of a later accident or disease (Öztürk, 2013). As prenatal causes of disability; Consanguineous marriage, genetics, heredity, inadequacy in nutrition and shelter needs, inadequacy in preventive health services, and not benefiting sufficiently from these preventive health services, namely vaccination and not having health checks on time, can be listed. The causes of disability encountered during birth can be given as

giving birth without the help of medical personnel or undesirable situations that occur during birth that are beyond the control of the patient or doctor. Environmental and socio-economic factors that the baby encounters from birth to the end of its life are suggested as postnatal causes of disability (Seyyar, 2015).

For disabled people; Needs such as education, employment and participation in social life have been given importance by the state and governments, and ensuring that disabled individuals live in the best conditions has become one of the most important social policies. When we look at the studies on disability in health and social sciences, it will be seen that there are studies on the causes of disability.

Problems Faced by Disabled People

Disability of individuals; It is a situation that negatively affects their lives, emotions, thoughts and activities. Feelings of shame, guilt, and inadequacy due to an individual's disability disrupt the development and functioning of society in general. When the disabled profile in our country is examined, considering the problems experienced by disabled individuals, it becomes impossible for disabled people to integrate into society. These problems, which spread to many areas of life, make it difficult for disabled individuals to exist in functional integrity with society. Society's lack of understanding of disabled individuals, failure to recognize disabled individuals in life, prejudiced attitudes towards disabled people; It emerges as a very important problem in terms of communication (Öztürk, 2013).

When we look at the world-wide data on poverty and disability, it is seen that there is a close relationship between the two facts: According to the evaluations, it is revealed that 20 percent of the poorest people in the world are disabled. It is also claimed that 70 percent of the disabled population lives in developing countries and 82 percent of the disabled population in developing countries is below the poverty line. Disabled people are the poorest among the poor, and although approximately 470 million of the world's disabled population are of working age, these disabled people often face disproportionate poverty and unemployment. Among the most important risk factors for poverty causing disability, health-related ones have an important place. The fact that poverty can be a cause of disability or a factor in the aggravation of a negative health condition is reflected in the studies conducted on this subject. According to the '2002 World Health Report' prepared by the World Health Organization (WHO), disability has an important place among the direct consequences of poverty.

In the contemporary world, education is considered one of the most fundamental problems of disabled individuals. The lack of education of disabled people is seen as the biggest obstacle to integration with society. First of all, policies implemented regarding education should not turn into obstacles for disabled individuals. While the education system in many developed countries is prepared for disabled individuals, it is very difficult to talk about this situation in our country. However, disabled students are individuals with high levels of individual needs depending on the nature of the disability. The more these needs are met, the more interest and motivation levels for learning can be increased. For example, physically disabled students or visually impaired students will need the help of someone else while doing an activity. Even if their needs cannot be met, at least as a personal right, they should be enabled to participate in this activity at the maximum level. (Sarı, 2005, p. 339). Providing such opportunities will bring countries to modern levels in education.

Rehabilitation is defined in the literature as regaining a lost ability or "substituting" new ones for lost abilities. If the disabled individual is no longer able to do the job he/she did before, the individual must be rehabilitated to do that job, or if it is not possible for the individual to do that job, the individual must be given skills for a new job. A disabled individual who does not go through the rehabilitation process will continue to have problems with his family in

particular and with society in general. The physical and psychological environment that will be prepared and the disabled individuals benefiting from rehabilitation opportunities according to their disability will enable them to integrate into social life. (Yılmaz, 2017, p. 169).

It is stated that one of the biggest obstacles to the integration of disabled individuals with society in social life is transportation, physical environment and housing problems. When designing the physical environment, it is necessary to make designs that take into account everyone, including disabled individuals living in that society. Roads, sidewalks, buildings, parks, gardens, shopping malls, parking lots and similar environmental elements, if not designed correctly, become a serious source of problems, especially for disabled individuals (Ölmezoğlu, 2015: 19). It is a reality that one of the important ways of socialization in the world and in our country is technology. The fact that access to information is becoming easier day by day and that almost all transactions are carried out through technology, thanks to the technology brought by the age, reveals the importance of accessibility and availability of technology. However, it has been determined that sources of access to information are seriously limited as a problem faced by disabled individuals. Since not only access to information but also all business and transactions in the public and private sectors are carried out via the internet, these applications must be made suitable and accessible for individuals with disabilities. It is thought that providing the procedures to be carried out in this context with appropriate technologies for disabled individuals will be a very important step in terms of accessibility and accessibility (Yıldız, 2013).

Socio-Political Model and Human Rights Approach

In the socio-political model, the concepts of disorder and disability are different from each other. Disorder refers to a chronic physical limitation or limitation caused by a specific disease; Disability refers to social or political situations that create obstacles to the disorder (Tınar, 2018). In short, this model considers the concepts of disorder and disability separately.

According to this model, disability is culturally constructed. In this model, disability is caused by the built environment (Çakmak, 2006). In summary, in this model, disability is seen as an outcome. Disability is a condition created by the environment.

In the socio-political model, the following aspects of disability are emphasized:

• Disabled individuals should define the phenomenon of disability.

• Disabled people should refuse to listen to experts to make way for their lives, to question their lives, and to define disability.

• Disabled people should reject the incomplete and abnormal disabled role (Burcu, 2000). In summary, this model emphasizes that the definition of disability should not be made by non-disabled people. Because the person experiencing the disability knows the disability better. Also, disability is a normal situation.

The human rights approach deals with society's classification of individuals as normal and abnormal. This model is similar to the social model. This model, like the social model, advocates that traditional structures built by ignoring environmental obstacles and disabled people should be changed. For this reason, the human rights model emphasizes the equality of all people, regardless of disability (Okur & Erdugan, 2010). According to the human rights approach, all people, regardless of disability, should be seen as equal. These differences are not significant. The main issue that this model draws attention to is that disabled individuals are seen as an oppressed group by society. In the human rights approach, disability has been seen as "social oppression" (Burcu, 2000). In this model, it is assumed that the disabled individual is oppressed in society because of his disability.

Disability and Employment

The work of individuals; It enables individuals to achieve financial freedom. Working increases the psychological and social well-being of disabled individuals. In addition, a job is seen as one of people's main sources of status and role. It has been determined that in case of unemployment, people's physical and mental health are negatively affected and the risk of having a disease or worsening their current health condition increases (Temizkan, 2019, p. 12).

Studies have shown that working for disabled individuals means something like "facing a new challenge" or "experiencing a sense of accomplishment". Therefore, working helps people with disabilities confirm and increase their self-confidence. Studies also show that working for disabled individuals improves their health and well-being by allowing them to get away from their illness routine or unstructured lifestyle. (Temizkan, 2019, p. 12).

Individuals have to work and earn income in order to sustain the existence of themselves and their dependents and to meet natural, social and cultural needs throughout their life cycle. Of course, this obligation is valid for disabled people as well as non-disabled people (Altan, 1976). On the other hand, the economic efficiency of individuals is also a necessary factor for the economic well-being of societies.

According to the data of the World Health Organization, taking world standards as a criterion, it is stated that 10% of the population in developed countries and 12% in developing countries consist of individuals with special needs. The fact that disabled individuals, who constitute a significant part of the society, find employment opportunities and become independent means that at least one person who is responsible for their care also has employment opportunities. Otherwise, even though the disabled person and the person in question have the ability to work, they will have to receive a share of the income without contributing to the national income. In this case, both family income will decrease and the labor force participation rate will decrease (Meşhur, 2004).

In general, it is claimed that the employment of disabled individuals is a social service that developed countries can handle. Because the services, facilities and opportunities provided to disabled people are compatible with the economic situation of that country. However, in reality, it is seen that this situation is not only related to the economic well-being of the country, but also the process that disabled people go through until they reach the employment process is important (Bilgin, 2005).

Every human being has the right to a standard of living worthy of dignity and to earn a living by working. In this context, disabled people should be provided equal opportunities in accessing all kinds of activities related to social life such as education, health, transportation, social activities, environment, housing and employment opportunities (Uşan, 1997).

In contemporary societies, people now; They are not divided into ignorant, poor, disabled, elderly or women, and this does not prevent them from exercising their rights. For this reason, the idea that the responsibility of those with physical or mental disabilities lies only with their families has been abandoned, and this responsibility is shared by the society and the state (Meşhur, 2004).

Working is not only a means of earning income but also a function of self-confidence and self-esteem for each individual. Working in a job and adding value and benefit to society also strengthens the sense of commitment to that society (Bilgin, 2005).

Employing disabled individuals in jobs appropriate to their abilities will ensure that the weaknesses and deficiencies caused by their disabilities are eliminated instead of being excluded from society. As a result, disabled people who are made useful to society through

employment will not face situations that contradict human dignity and will be enabled to establish solid relationships with the society (Meşhur, 2004).

Failure to ensure the participation and adaptation of disabled individuals to working life and the constant support of charities and individuals from outside will reduce them to the status of second-class citizens. This situation will damage the honor and dignity of the disabled person, cause him to lose self-confidence and belief, and cause him to isolate himself from society (Meşhur, 2004).

Legal Regulations for the Employment of Disabled People

Especially in the 18th century. As a period in which the perspective towards human life changed and human life and dignity came to the fore, it brought with it some transformations. In this period when slavery was banned, it was accepted that all people, whether women, poor or disabled, had inalienable rights. In these periods, it has become a necessity to improve the existing rights of the individual and add new rights for an adequate and effective life. In parallel with these developments, individuals with physical and mental disabilities have come under state control and responsibility beyond the protection of their families and helpers (Temizkan, 2019).

In the period when the traditional perspective was dominant, disabled people; genie, devil etc. He was seen as and killed. Later, during the period when the medical model was dominant, disabled people were approached only from a medical perspective and were seen as disorders that needed to be treated. However, with the social model, disability has become visible and how to integrate disabled people into social life has gained importance (Ölmezoğlu, 2015).

The employment of disabled people is not seen as a problem, but as an ordinary duty of the social state. This should be valid for individuals and society. The basic principle in policies regarding disabled people should be the fact that disabled people have legal, social and economic rights just like non-disabled people (Meşhur, 2004).

Conditions for participation in working life in social life are determined by legal rules. It is necessary to make legal regulations for individuals who experience inequality of opportunity in all areas of social life, such as disabled people. The main purpose of these regulations is; to overcome obstacles arising from various reasons and to ensure that disabled individuals can participate and continue working life under equal conditions with everyone else.

The International Labor Organization (ILO) was established in 1919 and in its founding constitution, it aimed to make regulations regarding the protection of disabled people, especially with provisions on disability discrimination (Kayacı, 2007).

The International Year of Persons with Disabilities was declared by the UN General Assembly in 1981 with the theme "Full Participation and Equality". In parallel with these developments, "36 Conventions on Vocational Rehabilitation and Employment of Disabled Persons" numbered 159 were accepted by the ILO on 01.06.1983. This agreement was approved by Türkiye on 08.07.1999. Article 3 of the contract in question draws attention to the issues of vocational rehabilitation and employment of disabled individuals with the statement "The policy in question should encourage disabled people to enter all categories of the open labor market and provide appropriate vocational rehabilitation" (http://www.ilo.org. 1998) (Kayacı, 2007).

A series of decisions regarding vocational rehabilitation and employment were taken in the International Labor Organization decision No. 99 "Recommendation on Vocational Rehabilitation of Disabled Persons". First of all, in recommendation no. 2, it was emphasized that vocational rehabilitation services should include all disabled people without any

discrimination and should prepare them for suitable work, ensuring that they have the expectation of obtaining and maintaining a job. In decision no. 3, which regulates the job placement and vocational training of disabled people, it is envisaged that disabled individuals will receive training together with the able-bodied workforce. However, it was decided to develop special education services for people who cannot receive education at the same time as other people due to their type and severity of disability (Kayacı, 2007).

Agreement; While mentioning an obligation to harmonize in the provision of vocational guidance, vocational training and job placement services to be offered by the competent authorities, the Recommendation envisages reasonable harmonization of workplaces, the general organization of work, the tools and machines used.

Although not open to the United Nations, the first document regarding the employment of disabled people is the Universal Declaration of Human Rights, adopted on 10.12.1948. Article 25 of this document states that "Everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including food, clothing, housing, health care and necessary social services. It has been decided to include disabled people within the scope of income security with the statement "Everyone has the right to security in case of unemployment, illness, disability, widowhood, old age and financial difficulties arising from circumstances beyond their control." This declaration was approved by Türkiye on 06.04.1949 (ÖYHGM, 2011).

The right to work is also guaranteed in Article 6 of the United Nations Covenant on Economic, Social and Cultural Rights. Examining the implementation of the Convention, the Committee revealed the obstacles that disabled people face while working and the scope of the state's obligation to remove these obstacles in its "General Comments" No. 5 on disabled people and No. 18 on labor rights (Temizkan, 2019).

General Comment No. 5 foresees the elimination of artificial barricades in front of disabled people by designing workplaces and business conduct according to the needs of disabled people, and it is stated that in addition to direct and indirect discrimination, failure to provide reasonable accommodation will also be considered discrimination (Temizkan, 2019).

Later, the United Nations added to the Universal Declaration of Human Rights with the "Declaration of the Rights of Disabled Persons" convention numbered 3447 on 09.12.1975. This declaration, consisting of 13 38 articles, points out the rights of disabled people to take part in society, to participate in society as productive individuals, and the society's fulfillment of its obligations towards these people. Article 3 states that disabled people have the right to have the same decent standard of living as non-disabled people, regardless of the cause, condition and degree of their disability. In article 10 of this declaration, it is stated that disabled people should be protected from all kinds of abuse, discriminatory and degrading behavior (Kayacı, 2007).

"Standard Rules on Equal Opportunities for Disabled Persons" was adopted with the United Nations General Assembly decision No. 48/96 dated 20.12.1983, which included an explicit article for the employment of disabled people for the first time. Accordingly, in rule 7, it is emphasized that there should be no discrimination against disabled people and rules that make employment difficult. While the state is expected to support the employment of disabled people in the public sector and make arrangements for this, in the private sector; It has been stated that it is necessary to make programs on the employment and education of disabled people and to take measures such as part-time work, job sharing and self-employment for disabled people (ÖYHGM, 2011).

The Convention on the Rights of Persons with Disabilities was adopted by the United Nations General Assembly with its resolution 61/106 on 13 December 2006. The Convention

entered into force on 03.05.2008 after the ratification of 82 countries. Türkiye signed this agreement on 30.03.2008. The convention in question is the first and only binding international legal instrument that provides holistic protection for the rights of people with disabilities. In Article 27 of the Convention, the party states accept that disabled people have the right to work under equal conditions with other individuals. This right includes the opportunity for people with disabilities to earn a living in a job they freely choose, in an open, inclusive and accessible labor market and working environment. State parties are obliged to ensure that the right to work of all disabled people is realized and to take all measures for their employment (ÖYHGM, 2011).

Although it is thought that the European Convention on Human Rights is not an effective tool to remove the obstacles that prevent disabled people from participating in working life due to its limited scope on disability, many important steps have been taken in its recent decisions. The Convention makes the fight against discrimination in working life essential, drawing attention to the obligation of states to make reasonable accommodations, evaluating the right to work within the scope of the principle of respect for private life in Article 8 of the Convention, and Protocol No. 12, which carries the prohibition of discrimination beyond the Convention (Temizkan, 2019).

Paragraph 1 of Article 15 of the European Social Charter dated 1961, which regulates "Vocational Training of Physically or Mentally Disabled Persons, and the Right to Adaptation to the Profession and Society", states that in order to maximize the life experiences of disabled people, by providing, if possible, a system close to the general system, if not within the general system, It envisages providing all necessary services to disabled people. In the second paragraph of the same article, it is regulated that states should take measures to encourage the employment of disabled people and make workplaces suitable for disabled people (Temizkan, 2019).

The European Social Charter of 1965, issued by the Council of Europe, addressed the issues of vocational training and employment of disabled people. Under the title of the Right to Work of the European Social Charter, it is stated that "State parties undertake to improve the provision of rehabilitation, education and vocational guidance and services to disabled people". Under the heading of Professional Guidance, the state provides all employees, including the disabled; It has been accepted that it provides free of charge services to solve problems encountered in job selection and professional development in accordance with their qualifications. Again, under the heading of Vocational Education, states are expected to provide technical and vocational training opportunities to all employees, including the disabled, and to facilitate higher technical education and university education (ÖYHGM, 2011).

The fact that the European Committee of Social Rights asked the question of whether family members are protected against disability-based discrimination in the field of employment, in a report submitted by Malta, is interpreted as the Committee demanding that disability-based discrimination in working life be prohibited not only for disabled people but also for their family members (Temizkan, 2019).).

The European Union does not have directives specifically regarding the rights, rehabilitation or employment of disabled people. However, since the 1970s, action programs have been made to ensure the participation of disabled people in social life.

As a result of the "First Action Program Aiming to Increase the Social Integration of Disabled People", the "Recommendation on the Employment of Disabled People in the Community" was adopted in 1986. This decision imposes obligations on member states to eliminate negative discrimination in the employment of disabled people, to employ compulsory disabled people (quota system), and to provide support to employers who employ disabled

people. With this decision, it is aimed to employ disabled individuals at a "fixed realistic rate" in private and public sectors. Although the decision was successful in identifying many deficiencies in the field of disability, it did not qualify as a directive (Özmen, 2018).

This decision includes the rights of mentally disabled individuals regarding education, vocational training, employment, social security, care and accommodation. It states that in order for mentally disabled individuals to be included in employment, appropriate jobs must be provided, mandatory quota application and criminal sanctions must be imposed. Supporting protected employment and training programs is also within the scope of the decision (Özmen, 2018).

There were no laws regarding the employment of disabled people in the period until the 1961 Constitution. Until this period, people with disabilities were either briefly mentioned in various laws or were only addressed within the scope of social protection. Among the reasons for this can be shown that the statist development policy is being followed as a result of the newly declared Republic. Rapid development efforts have been the priority of the country's policies and economic development has been prioritized. Studies on social problems and disadvantaged groups began to come to the fore after the country's economic development moves (Kamil, 2010).

Although disability is not explicitly used in the Code of Obligations dated 1926, employers are given the obligation to take preventive and protective measures. With the Municipalities Law of 1930, local governments were assigned to care for the disabled for the first time, and disability was briefly addressed within the scope of several laws. The most comprehensive treatment of disability was within the scope of the Law on Disability, Old Age and Death Insurance in 1957 (Uşan, 1997).

There are no direct articles regarding disability in the 1961 Constitution. However, Article 42 addresses the right to work and emphasizes that working is a right and duty for everyone. Between 1950 and 1960, an agreement was made with the International Labor Organization and it was decided to work together for the employment of disabled individuals (Uşan, 1997). The taking of this decision caused the political leaders of the period to start working on the employment of disabled people.

The first law in our country that obliges employers to employ disabled people is the Maritime Labor Law No. 854, which came into force on 29.04.1967. However, in terms of employing disabled people, reference is made to the labor law and the regulation to be issued based on it. Such a situation arose because the Maritime Labor Law was put into effect before these two laws, which were prepared on the same dates. The Labor Law No. 931 entered into force on 12.08.1967. However, Law No. 931 remained in force for three years and was later annulled by the Constitutional Court. Therefore, the Regulation stipulated by Article 25 has not been issued and this article of the law, which imposes the obligation to employ disabled people, has not found application (Akkaya, 2002).

Another important political development regarding disability was the Law No. 2022 dated 1976 on Pension Payment to Needy, Powerless and Orphaned Turkish Citizens Over the Age of 65. In order for disabled people to benefit from this pension, they must not be working, have a low household income, or not receive financial support from their family. Having such a regular income support program can also be shown as an important development in terms of Turkey's welfare state policies (Özmen, 2018).

Regarding employment, Article 50 of the 1982 Constitution states: "No one can be employed in jobs that do not suit their age, gender and strength. With the statement "Minors, women and those with physical and mental disabilities are specially protected in terms of working conditions", it is stated that disabled individuals are among those who need to be

protected in employment. In addition, according to Article 61/2 of the Constitution, the state is given responsibility for providing the necessary tools for the integration of disabled people into society, with the provision that "the state takes measures to ensure the protection of disabled people and their integration into social life" (ÖYHGM, 2011).

Labor Law No. 1475 was amended by Article 4 of Law No. 2869 dated 29.07.1980. In its new version, Article 25 of the Labor Law stipulates that employers employing 50 or more workers are obliged to employ 2% disabled people, and that fractions up to 0.5 will not be taken into account, and if it is 0.5 or more, it will be equal to the whole. In determining the limit of 50 workers, it has been stipulated that the number of workers working in all workplaces belonging to the same employer within the same provincial borders will be taken as basis (Uşan, 1997).

The First Disabled People's Council, organized by the Prime Ministry Disabled People's Administration, convened in 1999 and discussed important points regarding the employment of disabled individuals. One of the opinions expressed in the Council was; It is about the fact that disabled individuals are out of production because they are not employed and yet they receive a share of the national income. Employment of disabled people is also important for social interests. This view shows that in our recent history, the view that disabled individuals are a social burden if they are not employed has been dominant. For this reason, not being able to take part in employment does not only lead to disabled individuals not being in production and being deprived of its benefits, but also paves the way for them to face social exclusion. While one of the biggest reasons why disabled individuals cannot take part in employment is social exclusion, they also face a separate exclusion because they are not in employment.

In 2003, the new Labor Law No. 4857 came into force. With this law, employment of disabled people has been shaped by new regulations. In 2008, Article 30 of the Labor Law, which relates to the employment of disabled people, was rearranged with Law No. 5763. Article 30 of the Labor Law No. 4857, titled "Obligation to Employ Disabled and Ex-Convicts", obliges employers to employ 3% disabled individuals in the private sector and 4% in public workplaces if they employ fifty or more workers. The compulsory employment rate was kept higher than the rates in the Labor Law No. 1475. The law also includes information on incentives to be given for the employment of disabled people, penalties to be collected if disabled people are not employed, and information on where disabled individuals to be employed will be sourced. The lack of a comprehensive legislation for disabled people in Turkey and the existence of separate laws regarding disability have necessitated a comprehensive law. After the regulations made on special education and rehabilitation under the influence of the medical perspective, it has been demanded by non-governmental organizations that disability should be addressed in a holistic structure with a regulatory law, with a social model approach, since the 1990s. The need for an inclusive law was reiterated at the First Disability Council (Güngör & Güneş, 2011).

As a result of the demands made for many years, the law numbered 5378, "Law on Disabled Persons and Amendments to Certain Laws and Decree Laws", popularly known as the "Disabled Persons Law", was accepted in the Turkish Grand National Assembly in 2005. The general principles of the law are stated in paragraph a: "The State develops social policies against all kinds of abuse of disabled people and disabilities, on the basis of the inviolability of human honor and dignity. There can be no discrimination against disabled people; It is stated that "fighting discrimination is the fundamental basis of policies towards disabled people". It is seen that a democratic, participatory state approach has begun to dominate, with principles such as ensuring that disabled people, their relatives or non-governmental organizations are included in decision-making bodies (Güngör & Güneş, 2011).

Law No. 5378 has been addressed with a holistic approach under the headings of classification of disabled individuals according to disability criteria, care, types of care, service provision, rehabilitation, early diagnosis of disability and protective services, job and occupation analysis, vocational rehabilitation, employment, education and training. He predicted the feasibility of social policies to be implemented in these areas in the long term.

In 2013, the title of Law No. 5378, known as the "Disabled Persons Law", was amended by Law No. 6462, which legalized the use of the phrase "disabled" instead of the phrase "disabled". The phrase "Disabled Persons and Amendments to Certain Laws and Decree Laws" in the name of this law was changed to "Disabled People", and the expression "disabled" was used instead of "disabled" used in the text of the law. Since 2013, the name of Law No. 5378 has been changed to "Disabled Persons Law". This name change is also an indication that the approach to disability has changed from the medical perspective to a social model approach. The definition of disability in the law has changed, and instead of "disabled", which meant needy, helpless and defective in the old version of the law, with the new definition, disability is considered as discriminatory attitudes encountered due to standard human perception, whose accessibility is restricted due to negative environmental regulations. (Ozmen, 2018).

Disabled Employment Methods

Employment methods applied to include disabled individuals in working life can be grouped under 8 headings. These;

- Quota System

- Employer Employing Disabled Persons Without Obligation

- Self-Employment Method

- Disabled Person Working from Home

- Cooperative Working Method

- Protected Workplaces

Quota method; It is the obligation of employers who employ a certain number of workers to employ disabled people at the rate determined by law. This system, which was created with the precondition that disabled people cannot be included in the labor market without positive intervention, has a deep-rooted history in Western countries. Based on the social reality of unemployed disabled individuals, a method based on social obligation in employment has been created. It is implemented based on the data that if there is no compulsory employment (quota), employment without compulsory employment cannot be provided due to employers' perception that disabled people cannot be productive, concerns about any increase in labor costs such as workplace regulation costs, and discriminatory attitudes (Özmen, 2018).

The application of the quota system as a method of employing people with disabilities has a long history in the Western World. It was implemented in European countries after World War I in the public and private sectors, especially in order to facilitate the employment of those who became disabled during the war. It was used in Germany in 1919, in Austria in 1920, in Italy in 1921, in Poland in 1921, and in France in 1923. The quota application was later expanded to include other disabled individuals (Gönülçalan, 2016).

The quota system, which became widespread especially after World War I, began to lose its importance with the development of neo-liberal policies after 1980. Factors such as globalization and technology, especially neo-liberal policies, have created radical changes in the labor market, and the quota method has been gradually abandoned in this period when competition comes to the fore (Öz & Orhan, 2012).

The implementation of the quota method in the employment of disabled people in Turkey was made with the Maritime Labor Law that came into force in 1967. With the application of this method, the idea that disabled people can work in the workplace and contribute to the workforce has been strengthened in the public and private sectors in Turkey.

Between 1993 and 1997, an average of 11 thousand disabled people applied for a job at the Employment Agency every year, and approximately 5 thousand of them were placed in jobs. Approximately 89% of job applicants were male disabled individuals. During this period, 80% of disabled workers were employed by the private sector, while 20% were employed by public institutions and organizations. A survey was conducted by the state in 1996 and it was seen that only 10,500 of the 1.6 million civil servants were disabled individuals. According to the results of a research conducted by the State Personnel Presidency among 64 public institutions in 1998, it was understood that although 9,737 disabled people were supposed to be employed in these organizations, only 2,270 disabled people were employed (Seyyar, 2006).

Business owners employ disabled individuals without any criminal or legal obligations. In this model, which is one of the employment models for disabled people, prejudices about disabled people limit this opportunity. Due to prejudices against disabled people, it is not enough for disabled individuals to get the job opportunities they deserve through their own efforts alone. In order for disabled people to benefit from all rights equally with other individuals, negative attitudes and prejudices of the society must be removed and transformed into positive attitudes. This situation seems possible only by raising public awareness (Habalı, 2019).

It is among the complaints that disabled people who are suitable for work in terms of profession and education are not sent to work. In fact, some businesses prefer to employ disabled people just to avoid penalties, but do not actually employ these people at all, and only pay wages. Another problem is that workplaces are not physically suitable for disabled people to work and travel. Likewise, sometimes employers complain that people with low disability rates, from whom they can benefit, demand high wages (Ölmezoğlu, 2015).

This form of employment is when a disabled individual establishes a business with public support or with the resources of his/her own and those around him/her. This method is successful in establishing the most suitable business for the individual (Pamuk, 2002).

Self-employment is an important form of employment for disabled people, thanks to its advantages such as flexible working hours and the most suitable working conditions that the disabled person can provide for himself. However, this method is difficult to implement. At the point where disabled people can start their own businesses; Features such as basic education, economic conditions of the country, resource finding opportunities, vocational training and encouraged entrepreneurship must be present together. (Ozmen, 2018).

In Turkey, since 2014, with the scope of the "Regulation on the Commission Authorized to Use Administrative Fines Collected from Employers Who Do Not Employ Disabled and Ex-Convicts", İŞKUR's "Disabled Grant Support Program" has been providing support to disabled individuals, provided that they are over 18 years of age and have at least a 40% disability rate. Grants are given for projects. The grant fund will be provided from the administrative fines collected from employers who do not employ disabled people and ex-convicts, and will be used for projects to be prepared for the vocational training and rehabilitation of disabled people, ensuring their adaptation to work and the workplace, and establishing their own businesses (Özmen, 2018).

Nowadays, thanks to some of the conveniences and opportunities brought by the developing communication technology, working at home opportunities are being developed for the disabled. For example; Work that can be done from home in areas such as web design at

home and call center staff can enable disabled individuals to participate in the workforce at home by making arrangements according to their disability. Thus, disabled people become individuals who work and contribute to production.

Although the convenience and comfort advantage of working at home provides to the disabled, it can also create disadvantages such as social exclusion, as in the protected workplace, in that it prevents individuals from mixing with society and socializing.

The method in which disabled individuals create opportunities to work in various fields of work in cooperative organizations established by their own efforts or with state support is called "cooperative working" method. In this collaborative method, disabled individuals can evaluate their current abilities and capacities, improve them according to the work they will do, and operate in their sector as an independent organization (Tören, 2014).

According to the legislation of the countries that implement the cooperative working method, these cooperatives are subsidized in different ways. For example, in Italy, if social cooperatives are available for jobs under 200,000 Euros, the job in question is given to social cooperatives without a tender. In practice, the cooperative working method is similar to protected workplaces, but the only difference is; While there is an organization in the form of a workplace in the protected workplace method, in this method, disabled individuals are organized in the form of cooperatives (Öz & Orhan, 2012).

The sheltered workplace provides a working environment in protected buildings in an environment open to people with disabilities, and offers employment opportunities that are away from the competitive environment and do not carry the risk of failure. The protected workplace method, which includes a number of different programs, reduces the risks and problems faced by disabled individuals and provides them with a more comfortable working environment.

In Law No. 5378, protected workplace is defined as "a workplace where the State provides technical and financial support and where the working environment is specially arranged in order to create vocational rehabilitation and employment for disabled people who are difficult to integrate into the normal labor market."

Purposes of protected workplaces; To provide rehabilitation services to disabled individuals, providing daily care, education and employment opportunities, and thus to achieve social integration by ensuring their participation in both the employment market and social life (Çavuş & Tekin, 2015).

In the protected employment method, it is aimed to realize many programs in order to achieve these goals. Programs such as sheltered employment, public sectors where individuals with disabilities work in open environments but in protected buildings, protected workplaces in companies as production units, and the creation of recycling and repair workshops are the most commonly known programs (Öz & Orhan, 2012).

There are various models of protected workplaces. These; therapeutic model, intermediate model, mixed model and wage-based employment models. The therapeutic model is a model in which mostly mentally disabled individuals are employed and rehabilitation rather than work is essential. In this model, employees are approached as participants, not as workers. In the intermediate model, the disabled person is a part-worker and is not subject to all debts and obligations related to work. While the model in which all models are together is a mixed model, the model in which disabled people are full workers is a wage-based employment model (Çavuş & Tekin, 2015).

Conclusion and Recommendations

Individuals need some basic needs to continue their lives. These are needs such as shelter, health, nutrition and education. Obtaining these by the individual requires a certain income. It is important that this income is continuous. This continuity of income makes it necessary to work. Today, job opportunities that do not increase despite the ever-increasing population rate make it difficult for people of working age to find a job. While finding a job necessary for an individual to continue his life becomes more difficult every day, it becomes more difficult to maintain continuity in the job market. An individual who can find a job needs to improve his skills and increase his experience in order to be permanent in this job. When an individual is looking for a job, he is asked to have the desired characteristics. Finding a job not only represents an economic recovery for the individual, but also provides his/her personal development and socialization. Socialization enables the individual to participate in society and realize his own existence. The act of working not only makes people feel healthier and more useful psychologically, but also instills a sense of confidence in people. Although the benefits of working have such a positive effect on individuals, as we mentioned above, it is very difficult to find a job today. States create policies to ensure that individuals find jobs and ensure their employment, but this is not enough.

It is a known fact that finding a job is difficult for healthy individuals today. The situation becomes even more difficult for disabled people who experience this difficulty more than normal individuals. Finding a job and the positive effects of working are very important for disabled people. By participating in working life, disabled individuals can not only gain financial gain but also realize their own existence. They do this by participating in society, socializing, demonstrating their skills and enjoying life. In this way, an important step is taken towards disabled people becoming society itself rather than a disorder for states and societies. Employment of disabled people is an issue that today's states attach importance to on their way to becoming a social state. In this regard, they implement some social and economic policies for the disabled. This is a requirement of being a social state. Public institutions and private organizations within the state that strive to meet this requirement by making policies; They make agreements regarding the employment of disabled people. The annual obligation to employ disabled people is one of them, and even the most important. However, the educational processes that disabled people go through differ from normal individuals. Naturally, they need to have some skills and abilities when getting a job. To this end, it is ensured that they have professional knowledge for the job they will work on. In Turkey, there are organizations such as İSMEK, which provides vocational training, business project gate, and employment unit, that provide knowledge and skills not only to physically disabled groups but also to other disabled groups. Thanks to these formations, disabled people have come a long way towards becoming employed.

There are legal regulations in our country to ensure the employment of disabled people. The first law in our country that obliges employers to employ disabled people is the Maritime Labor Law No. 854, which came into force on 29.04.1967. However, in terms of employing disabled people, reference is made to the labor law and the regulation to be issued based on it. Such a situation arose because the Maritime Labor Law was put into effect before these two laws, which were prepared on the same dates. The Labor Law No. 931 entered into force on 12.08.1967. However, Law No. 931 remained in force for three years and was later annulled by the Constitutional Court. Therefore, the Regulation stipulated by Article 25 has not been issued and this article of the law, which imposes the obligation to employ disabled people, has not found application. In subsequent periods, situations that created obstacles like this were corrected or changed.

In the past, physical disability was examined only from a physiological perspective, but in the recent past, it has begun to be evaluated from a social perspective, like other disability groups. Of course, changing economic, social and economic relations have a large and leading role in this. The two recent world wars have caused an increase in the number of physically disabled people. The world, which has become industrialized and puts production at the forefront, has started to include the increasing number of physically disabled people in this production process. They tried to employ them, but this was not as easy as expected. This situation has led to confusion and doubts among employers and those with physical disabilities who will participate in working life. As we mentioned above, the disabled person's lack of knowledge and skills causes low self-confidence in the disabled person and production anxiety in the employer. At this point, efforts to empower disabled people and motivate them to work call for social workers to take office. The social worker conducts individual meetings to include the disabled person in this process. Participates in joint projects with the disabled person's family. The aim is to empower disabled people and ensure their well-being by preventing their exclusion from society.

References

Akkaya, S. (2002). *Türkiyede İnsan Kaynakları Açısından Engellilerin İstihdamı*. Yayınlanmamış Yüksek Lisans Tezi. İstanbul: Marmara üniversitesi Sosyal Bilimler Enstitüsü Kamu Yönetimi Anabilim Dalı.

Altan, Ö. Z. (1976). *Sakatlar ve Türkiye'de Çalışma Sorunları.* Eskişehir: İktisadi ve Ticari İlimler Akademisi Yayınları.

Bilgin, K. U. (2005). Özürlülerin Çalışma Hayatındaki Sorunları ve Çözüm Önerileri. *Kamu- İş Hukuku ve İktisat Dergisi*, 5(4). 21-38.

Burcu, E. (2000). Özürlülük Kimliği ve Etiketlemenin Kişisel ve Sosyal Söylemleri. *Hacettepe Üniversitesi Edebiyat Fakültesi Dergisi*, (23), 61-83.

Çakmak, N. M. (2006). *Türk Kamu Hukuku Açısından Engellilerin Hukuki Statüsü.* Yayınlanmamış Doktora Tezi. Ankara: Ankara Üniversştesş Sosyal Bilimler Enstitüsü Kamu Hukuku Anabilim Dalı.

Çavuş, Ö. H., & Tekin, A. (2015). Türkiye'de Engellilerin İstihdam Yöntemi Olarak Korumalı İşyeri. *Dokuz Eylül Üniversitesi İktisadi İdari Bilimler Fakültesi dergisi, 30*(1), 145-165.

Gönülçalan, A. (2016). Türkiye'de Engelli İstaihdamı ve İşverenlerin Engelli İstihdamına Yönelik tutumları: Trabzon Örneği. *Bolu Abant İzzet Baysal Üniversitesi Sosyal Bilimler Enstitüsü Dergisi,* 16(3), 111-130.

Güngör, F., & Güneş, G. (2011). Dünya'daki Gelişmeler Paralelinde Türkiye'de Değişen Özürlülük Politikaları. *Yalova Sosyal Bilimler Dergisi,* 1, 25-44.

Habalı, Z. A. (2019). Engellilerin İstihdam Edilebilirliğine Yönelik Nitel Bir Araştırma. Yayınlanmamış Yüksek Lisans Tezi. İzmir: Dokuz Eylül Üniversitesi Sosyal Bilimler Enstitüsü Çalışma Ekonomisi ve Endüstri İlişkileri Anabilim Dalı.

Kamil, O. (2010). "Modern Zamanlar" Filmi ve Dönemsel Bir Çalışma İlişkileri Yorumlaması. *Çalışma ve Toplum Dergisi*. 1(24), 133-152.

Kayacı, E. (2007). *Özürlüler için Verimli Bir İstihdam Politikası Oluşturulması.* Yayınlanmamış Uzmanlık Tezi. Ankara: İŞKUR.

KIZILKAYA, S. (2016). *Yoksulluk-Engellilk İlişkisi ve Evde Akraba Bakımı Uygulamasının Değerlendirilmesi.* Yayınlanmamış Yüksek Lisans Tezi. İstanbul: İstanbul Üniversitesi Sosyal Bilimler Enstitüsü Sosyoloji Anabilim Dalı.

Meşhur, A. (2004). Özürlülerin Çalışma Yaşamına Katılma Gereği ve Uygulanan İstihdam Politikalarının Değerlendirilmesi. *Özveri Dergisi*. 1(2), 176-192.

Okur, N., & Erdugan, F. (2010). Sosyal Haklar ve Özürlüler: Özürlülük Modeli Bağlamında Tarihsel Bir Değerlendirme. *Sosyal Haklar Ulusal Sempozyumu* (s. 245-263). İstanbul: Petrol İş Yayınları.

Ölmezoğlu, N. İ. (2015). *Çalışma Yaşamında Engelliler:Gümüşhane İli Engelli İstihdamına İlişkin Emek Arz Yönlü Bir Çalışma.* Yayınlanmamış Yüksek Lisans Tezi. Ankara: Gazi Üniversitesi Sosyal Bilimler Enstitüsü Çalışma Ekonomisi ve Endüstri İlişkileri Anabilim Dalı.

ÖYHGM. (2011). *İşgücü Piyasasının Özürlüler Açısından Analizi.* Ankara: Çalışma ve Sosyal Güvenlik Bakanlığı Özürlü ve Yaşlı Hizmetleri Genel Müdürlüğü.

Öz, C. S. & Orhan, S. (2012). Özürlü İstihdam Yöntemlerinin Uygulanabilirliği Üzerine Bir İnceleme. *Çalışma İlişkileri Dergisi, 3*(2), 36-48.

Özmen, D. D. (2018). *Engellilere Yönelik Alternatif İstihdam MOdelleri: KOrumalı İşyeri Örneği*. Yayınlanmamış Yüksek Lisans Tezi. Muğla: Muğla Sıtkı Koçman Üniversitesi Sosyal Bilimler Enstitüsü Çalışma Ekonomisi ve Endüstri İlişkileri Anabilim Dalı.

Öztürk, M. (2013). *Hayata Renk Katanlar, Engelli Grupları*. İstanbul: İlke Yayıncılık.

Pamuk, S. P. (2002). *Çalışma Yaşamında Özürlülerin İş Doyumu ve Bir Uygulama*. Yayınlanmamış Yüksek Lisans Tezi. Bursa: Uludağ Üniversitesi Sosyal Bilimler Enstitüsü Çalışma Ekonomisi ve Endüstri İlişkileri Anabilim Dalı.

Sarı, H. (2005). Selçuk Üniversitesinde Öğrenim Gören Bedensel Engelli ve Görme Engelli Öğrencilerin Karşılaştıkları Sorunlar ve Çözümüne Yönelik Çağdaş Öneriler. *Selçuk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi,* (13), 339.

Seyyar, A. (2006). *Özürlülere Adanmış Sosyal Politika Yazıları*. Sakarya: Sakarya Büyükşehir Belediyesi Yayınları.

Seyyar, A. (2015). Dünya'da ve Türkiye'de Engelli Dostu Sosyal Politikalar. İstanbul: Rağbet Yayınları.

Temizkan, E. (2019). *İstihdam Edilmiş Olan Engelli Bireylerin İşile İlgili Deneyilerinin ve İşe Bakış Açılarının İncelenmesi*. Yayınlanmamış Yüksek Lisans Tezi. Ankara: Hacettepe Üniversitesi Sağlık Bilimleri Enstitüsü Ergoterapi Anabilim Dalı.

Tınar, Y. (2018). *Engellilere Yönelik Hizmetlerin Yönetimi ve Sunumu: Karşılaştırmalı Bir Değerlendirme*. Yayınlanmamış Doktora Tezi. İstanbul: İstanbul Üniversitesi Sosyal Bilimler Enstitüsü Çalışma Ekonomisi ve Endüstri İlişkileri Anabilim Dalı.

Tören, Z. (2014). *Kamuda Çalışan Engelli Kadınların Problemleri*. Yayınlanmamış Yüksek Lisans Tezi. İstanbul: İstanbul Üniversitesi Sosyal Bilimler Enstçtüsü Kamu Yönetimi Anabilim Dalı.

Türk Dil Kurumu. (2005). *Türkçe Sözlük* (10. Baskı). Ankara: TDK Yayınları.

Uşan, M. F. (1997). *İş Hukukunda Sakat İstihdamı* (Yayınlanmamış Doktora Tezi). Konya: Selçuk Üniversitesi Sosyal Bilimler Enstitüsü Özel Hukuk Anabilim Dalı İş ve Sosyal Güvenlik Hukuku Bilim Dalı.

Yıldız, Ö. (2013). *Sosyal Sorunlar*. Eskişehir: Anadolu Üniversitesi AÖF Yayınları.

YILMAZ, G. (2017). Engelli Çocuk ve Rehabilitasyon. *Türkiye Klinikleri Çocuk Sağlığı ve Hastalıkları Hemşireliği* (Engelli Çocuklar ve Hemşirelik Yaklaşımı Özel Sayısı, cilt: 3, 169-175.

Süreklilik Dönemi Olarak Sözde Karanlık Çağ

Radwa SALEM[1]

Giriş

Karanlık Çağ (KÇ), modern bilimde Miken uygarlığının sonu (MÖ 1200) ile Geometrik Yunanistan'ın başlangıcı (MÖ 900) arasındaki dönemi belirtmek için kullanılan bir terimdir.[2] Ek olarak, akademisyenler aynı döneme atıfta bulunmak için Homeros Dönemi ve Kahramanlık Çağı gibi başka terimler kullandılar, her ikisi de Homerik şiirlerden ilham aldı; çanak çömlek stillerinden ilham alan Proto-Geometric (PG) ve Geometric; ve son olarak arkeolojik terimler, Geç Tunç Çağı (GTÇ) ve Erken Demir Çağı (EDÇ).[3]

KÇ kavramı esas olarak literatürün yokluğu ve Miken uygarlığının farklı yönlerinin düşüşü ile ilgiliydi. Nüfusun azalması, yerleşim kalıplarının değişmesi, sanatta bozulma, dinin devamsızlığı ve ölü gömme geleneklerindeki değişim bu "düşüş"ün temel özellikleriydi.[4] Dış istilalar, göçler, depremler, iklim değişikliği ve kuraklık gibi gerilemenin nedenlerini ve KÇ'nın başlangıcını açıklamak için birçok teori ortaya atıldı.[5] Bununla birlikte, konu yirminci yüzyılın ikinci yarısında bilimde bir trend haline geldiğinden, düşüşün bu yönlerinin çoğu yeniden değerlendirildi. Sonuç olarak, 1990'larda ve sonrasında artık Karanlık olmadığı için KÇ yerine EDÇ teriminin kullanılmasına yönelik çağrılar arttı.[6]

Değişim ve/veya süreklilik konusuna Miken döneminden sonrasına kadar hayatın din, sanat, mimari, yerleşim kalıpları, ticaret, dil vb. farklı yönlerindeki değişim ve süreklilik unsurlarının izini sürülerek yaklaşılmaktadır. Ancak, kelime sınırı nedeniyle, bu yönlerden sadece bazılarını seçmek zorundayım. Konuya gömme geleneklerini inceleyerek yaklaşacağım çünkü 1) bu döneme ilişkin anlayışımız esas olarak mezarlardan geliyor, 2) mezar kanıtları konuya farklı boyutlar sağlayabilir, çünkü dinin, sosyal yönlerin, zanaatların, mimarinin, sanatın ve modanın 'toplu bir temsilini' sunar.[7]

Konunun bölgesel sınırlarına gelince, James Whitely'nin belirttiği gibi, sözde KÇ ile uğraşan arkeologların karşılaştığı sorunlardan biri birliğin olmamasıdır. Maddi kültürde, literatürde sunulan Homeros toplumu hakkındaki bilgilerimizi -Homerik şiirler o dönemi anlatıyorsa- tüm Yunan bölgeleri için geçerli kılabilecek bölgesel farklılıklar vardır.[8]

Karanlık çağ denilen

Tarihsel ve arkeolojik çalışmalar için dönemselleştirme esastır, ancak olayların akışına patlaması nedeniyle eleştirilmiş, Gierstand'ın dediği gibi 'Hayat süreklidir, arkeoloji

---

[1] Araştırma görevlisi, Ain Sham Üniversitesi/ Doktora öğrencisi, Selçuk Üniversitesi.

[2] Kronolojinin tartışmalı olduğunu belirtmekte fayda var. Antony Snodgrass, KÇ'nın sonunun MÖ sekizinci yüzyılda olduğunu öne sürerken, Vincent Desborough bunun MÖ 900'de sona erdiğini öne sürdü (Snodgrass 1972; Desborough 1972). Oliver Dickinson ise dokuzuncu ve yedinci yüzyılların o kadar da "karanlık" olmadığını savunarak araştırmasını MÖ 1200-900 yılları arasındaki döneme odakladı (Dickinson 2006B). Belirgin bir şekilde, Kenneth Wardle, Thomas Higham ve Bernd Kromer, Yunanistan'ın kuzeyindeki Assiros'tan buluntuların C14 tarihlemesine dayanan farklı bir kronoloji getirdiler LHIIIC'nin en az 100 yıl önce sona erdiğini ve Ptorogeometric'i MÖ 1120'de başlattığını öne sürdüler (Wardle, K. ve diğerleri 2014:7).

[3] Kotsonas 2016:120.

[4] Dietrich 1970:16; Desborough 1972:15-22; Snodgrass 1971:1-2;21.

[5] Lewartowski 1998:135.

[6] Sacks 2005 [1995] :104; Dickinson 2006B:8; Raaflaub, et al 2009: xxi; Morgan 2009:44.

[7] Cavanagh 2008:330; Mureddu 2016:69.

[8] Whitely 1991:342.

bölünmüştür' 9 Benzer şekilde, Ian Morris, arkeologların kendi zaman çizelgelerini oluşturduklarında, "[onların] açığa çıkardığı kadar gizleyebileceklerini" belirtti.10 Bununla birlikte, belirli özelliklere göre farklı zaman dilimlerini etiketleyen bölünmüş zaman sınırları olmadan geçmiş çalışılamaz. Bu nedenle, geçmişin incelenmesine "olanak sağladığı" için dönemlendirme kaçınılmazdır.11 KÇ ile ilgili olarak bu dönemlendirme, 1200-900 arası dönemi, Yunan tarihinde olayların sürekliliğini bozan bir boşluk olarak göstermiştir.

Dönemlendirmeyle ilgili bir diğer sorun da, bilim adamlarının her zaman aynı etiket üzerinde anlaşmaya varmamaları veya bazen aynı etiketi farklı dönemlere atamalarıdır.12 Bu nedenle KÇ'nın Modern Yunan tarihçiliğinde kendi tarihi vardır (Şekil.1).13 Edebiyat erken bilime hakim olduğundan, MÖ yedinci yüzyıldan önceki tüm döneme verilen en eski isim, Homeros şiirlerine atıfta bulunarak Kahramanlık çağıydı.14 Dönemin "Karanlık" olarak ilk anılması Gilbert Murray'in "Bilgi adasının çok ötesinde ya da *karanlıktan* sonra görünen bilgi vardır; sonra sürekli tarihin başlangıcı".15 Murray'in ifadesi, bilim adamlarının MÖ 700'den önceki Yunanistan kronolojisini iki döneme nasıl ayırdığını yansıtıyor: Miken dönemi (MÖ 1600-1200) ve KÇ (MÖ 1200-700). Bu kronoloji, Henry Schliemann'ın Bronz Çağı (BA) keşiflerinin ve Flinders Petrie'nin Mısır'daki on dokuzuncu hanedanın Ege'deki Miken çöküşüyle senkronizasyonu ışığında yapıldı.16 Schliemann'ın keşifleri Miken dönemine atfedilirken, Petrie'nin tarihlendirdiği çöküş ile birlikte bir yanda Ege'de edebiyatın yokluğu ve diğer yanda komşu uygarlıkların edebiyatında Yunanistan'ın yokluğu, Miken sonrası dönemi karanlıkla ilişkilendirdi.17

TABLE 2. TERMINOLOGICAL PREFERENCES OF AUTHORS BETWEEN 1920 AND 2015

Decade	Favors Dark Age	Favors Early Iron Age	Approximate Ratio DA:EIA
1920s	3	0	—
1930s	3	4	1:1
1940s	0	0	—
1950s	3	10	1:3
1960s	9	7	4:3
1970s	27	5	6:1
1980s	46	27	7:4
1990s	74	86	6:7
2000s	50	152	1:3
2010s (projected)	32	118	1:4

Note: Light shading indicates term in some favor; dark shading indicates term is clear favorite.

Şekil 1 KÇ ve EDÇ terimlerinin bilimdeki tercihleri (Murray, S. C. 2018:27, table.2).

---

9 Gjerstad 1944:103.
10 Morris 1997:96.
11 Morris 1997:96.
12 Tek bir yayında bile bilim adamları aynı döneme farklı isimler vermişlerdir. Örneğin, Ainan ve Leventi "The Aegean" adlı makalelerinde hem Karanlık Çağ hem de EDÇ terimlerini daha fazla açıklama yapmadan kullanmışlardır (Ainian and Leventi 2009:212-214).
13 Morris 1997:96; Davies 2009:14-5.
14 Morris 2000:85.
15 Murray 1907:29; Snodgrass 1971:1.
16 Morris 2000:88.
17 Snodgrass 1987:171.

Alan yirminci yüzyılın başlarında filolojinin egemenliğinde olduğundan, arkeologlar bulgularını tam tersi şekilde değil edebiyatla açıklamaya çalıştılar. Bu nedenle, KÇ maddi kültürü daha az önemliydi ve önceki ve sonraki dönemlere kıyasla daha az ilgi gördü.[18] Martin Nilsson'a göre KÇ, "Taş Devri hariç, Yunan tarihinin en fakir ve en karanlık dönemiydi".[19] Bu açıklama iki şeye dikkat çekiyor: 1) edebiyatın hakimiyeti, bu, edebi kanıtlardan yoksun dönemlerin ihmal edilmesine ve kültürel olarak benzer olarak görülmesine neden oldu (Taş Devri ve DA). 2) Dönemleştirmenin KÇ 'yı, hem süreklilik hem de değişim unsurlarıyla karakterize edilen bir geçiş dönemi olarak incelemek yerine, tarihin sürekliliğini ortaya çıkaran kültürel bozulma ile karakterize edilen bir boşluk dönemi olarak nasıl gösterdiği.

Yirminci yüzyılın ikinci yarısında bu konu, bilimde bir canlanmaya tanık oldu. 1950'lerde Linear B'yi keşfettikten sonra, Michael Ventris Miken uygarlığının Homeros'un şiirlerinden farklı bir ekonomik sisteme sahip olduğunu doğruladı, dolayısıyla Homeros'un şiirleri Miken dönemini tanımlamaz.[20] Ventris'in vardığı sonuca dayanarak, Moses Finley, Miken'in çöküşünü takip eden döneme Homeros toplumunu yerleştiren yeni bir dönemlendirme getirdi. Finley tarafından tartışıldığı gibi, Homeros'un hediye değişim sisteminin gösterdiği siyasi zayıflığın Miken siyasi gücüyle çelişkili olduğuna inanılıyordu. Finley, DA'nın, toplumun, statünün bir süreklilik boyunca ilerlediği bir toplumdan, statünün özgür veya köle olduğu bir topluma geçtiği bir ara dönem olduğunu savunuyor. Bu nedenle, KÇ önceki ve sonraki dönemlerin daha iyi anlaşılması için önemli bir anahtardır. Çalışmaya değmeyen karanlık bir dönem değildir.[21]

Atina'daki İngiliz Okulu öğrencileri, sözde KÇ'ya büyük ilgi gösterdi. Onlar KÇ'nın Ege'ye bölgesel yaklaşımları mümkün kılan bir dizi sistemli çalışma ve çanak çömlek tipolojisi ürettiler. (Lorimer, H. 1950; Desborough, V. R. d'A. 1952, Coldstream, J. N. 1968). 1970'lerde Karanlık Çağlar başlığıyla iki etkili eser yayınlandı: Desborough'nun Yunan Karanlık Çağları ve Snodgrass'ın Yunanistan'ın Karanlık Çağı. Kitaplarında, KÇ maddi kültürünün bölgesel ölçekte bir yorumunu sundular ve kitapları o dönemin araştırılmasında etkili olmaya devam ediyor.

"Yunanistan'ın Karanlık Çağı Bizim Anlayışımızdır".[22] Whitley'in söylediği bu açıklama, 1990'larda bilimdeki değişimi yansıtıyor. KÇ terimi ile ilişkilendirilen kültürel bozulma kavramı, süreklilik unsurlarının eşlik ettiği kültürel değişim anlayışının önünde kaybolmaya başlamıştır.[23] Bu süreklilik daha sonra Yunanistan'a yayılan yeni kültürün bir parçasıydı, dolayısıyla Karanlık Çağ bir boşluk değildi, bir aktarımdı. Bu yeni yaklaşımın bir örneği Oliver Dickinson'ın çalışmasında *Tunç Çağından Demir Çağına Ege: MÖ 12. ve 8. Yüzyıllar Arasında Süreklilik ve Değişim* görülebilir.[24] Dickinson kitabında, Geç bronz çağı ve erken demir çağı'da Ege Bölgesi'ndeki değişim ve süreklilik unsurlarının izini sürmeye çalıştı. Ayrıca, Anadolu kıyılarını da dahil ederek konuya daha geniş bir coğrafi sınırlar getirdi.

Kotsakis, bilimdeki bu değişimlere ilginç bir açıklama getirdi. Yunan arkeolojisindeki erken bursun siyasetten etkilendiğini belirterek, disiplin üzerindeki akademik olmayan etkiye ışık tuttu. Yunanistan'ın 1829'da Osmanlı İmparatorluğu'ndan bağımsızlığını kazanmasından sonra, milliyetçiliğin güdümünde Yunan ve Yunan olmayan bilim adamları, tarih öncesi Yunanistan'a çok az dikkat ederek Yunan uygarlığının Klasik dönemden günümüze kadar devam ettiğini kanıtlamaya çalıştılar. Başka bir deyişle, çok profesyonel olmayan batılı bilim adamları, arkeolojik kanıtları siyasi gündeme hizmet etmek için manipüle ederek Yunanistan'ı

---

[18] Morris 2000:89.
[19] Nilsson 1933:246
[20] Morris 2000:91.
[21] Finley 1981:132; Morris 1997:117.
[22] Whitley 1991:5.
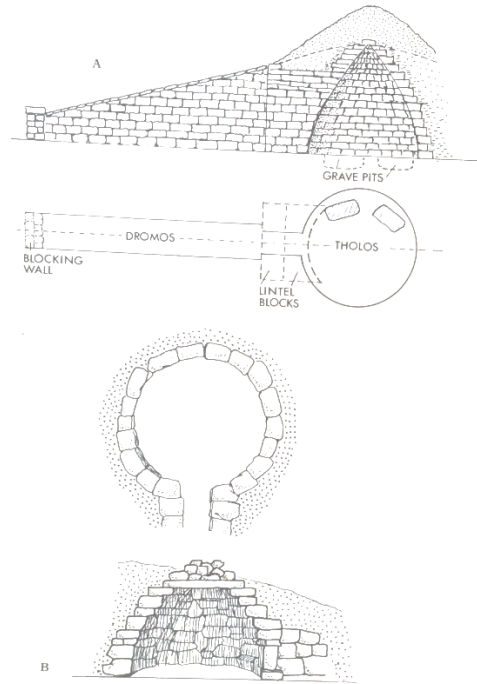[23] Mureddu 2016:22.
[24] Dickinson 2006.

Osmanlı kimliğinden ayırmaya çalıştılar. 20. yüzyılın ikinci yarısında tarih öncesi Yunanistan'a olan ilginin zirvede olduğu dönemde, bilim adamları Yunan ulusunun Tarih Öncesinden günümüze kadar olan sürekliliğini kanıtlamaya çalıştıkça benzer bir tutum sergilendi.[25]

Gömme adetleri

Cenaze kanıtları, modayı, sanatı, alışkanlıkları ve inançları kapsadığı için Karanlık Çağların sürekliliğini ve değişimini incelemek için çok iyi bir yaklaşımdır.[26] Bu bölümde ölüm mimarisini ve ölülerin atılması incelemeyi düşünüyorum.

Başlangıç olarak ölüm mimarisi, Miken döneminde, üç ana anıtsal mezar türü tanımlanmıştır: oda mezarlar (CT'ler), tümülüsler ve tholoi (şekiller. 2,3,4).[27] Ayrıca, sanduka mezar, çukur mezar, çömlek gömü, kuyu ve mağara gibi anıtsal olmayan mezarlar da vardı ancak bunlar daha az popülerdi.[28] Ayrıca, Mikenliler tarafından uygulanan tipik bir gelenek, çoklu gömmelerdi, bireysel gömmeler ise seyrekti.[29]

LHIIIC döneminde tek gömü kullanma eğilimi vardı ve mezarlar CT'ler, tholoi ve tümülüslerden daha popüler hale geldi. Childe'dan etkilendiler, Donna Kurtz ve John Boardman, tek mezar geleneğinin bu patlamasını, Miken ölü gömme geleneklerini güçlü bir şekilde etkileyen yabancı bir istilayla açıkladılar.[30] Sandık mezarların (Şekil 5) kuzeybatı Yunanistan'da yaşayan insanların özelliklerinden biri olduğunu savundular. Bu mezarlıkların insan kalıntılarının analizinin bir kuzey unsurunu ortaya çıkardığını belirterek argümanlarını desteklediler.[31] Ancak iskelet analizleri sadece Attika mezarlarından yapılmıştır, bu nedenle önerdikleri gibi genel olarak tüm Ege'ye uygulanamaz.

Şekil 2 Tholos mezar (Desborough 1972:267, fig. 26)

---

[25] Kostakis 1991:70-1.
[26] Mureddu 2016:38.
[27] Cavanagh 2008:328.
[28] Lewartowski 2000:9-10.
[29] Desborough 1972:266.
[30] Childe, geleneklerin ve maddi kültürün değişmesinin sosyal olarak onaylanmış bir davranış olduğunu, dolayısıyla geleneklerin ve maddi kültürün değişmesinin insanların değişmesi anlamına geldiğini savundu (Childe, G. 1956:10).
[31] Kurtz and Boardman 1971:25.
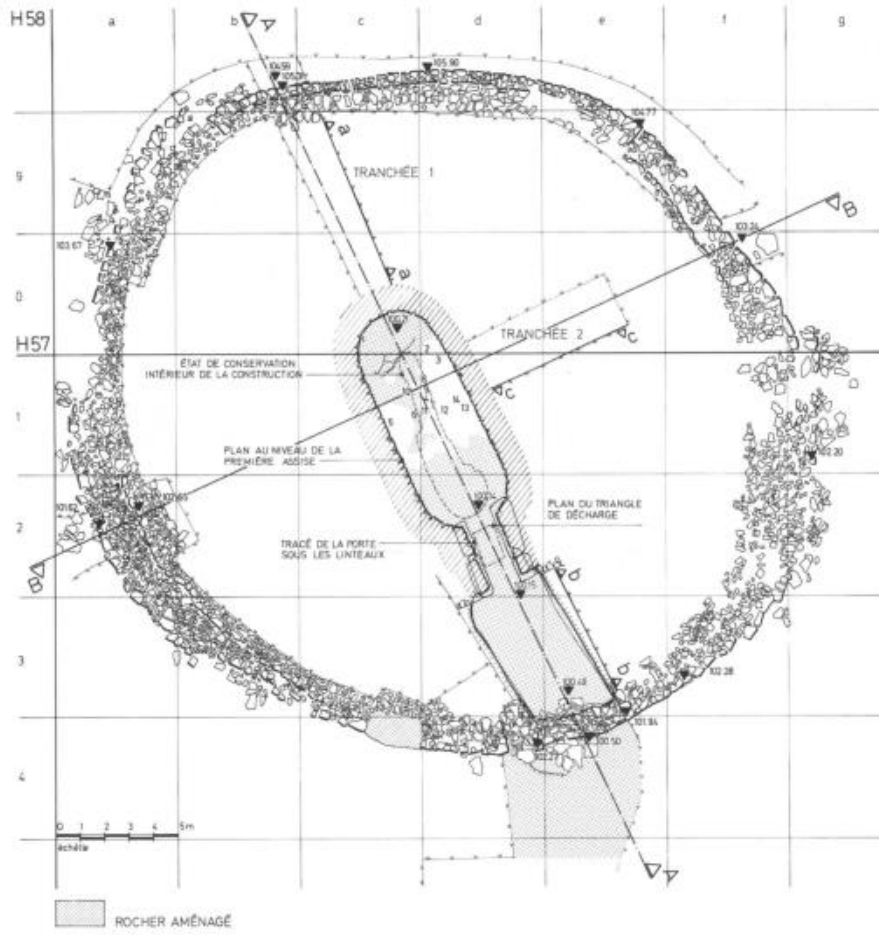
Şekil 3 Bir tümülüs mezarı, Atika (Papadimitriou, N. 2001:84, fig. 9).
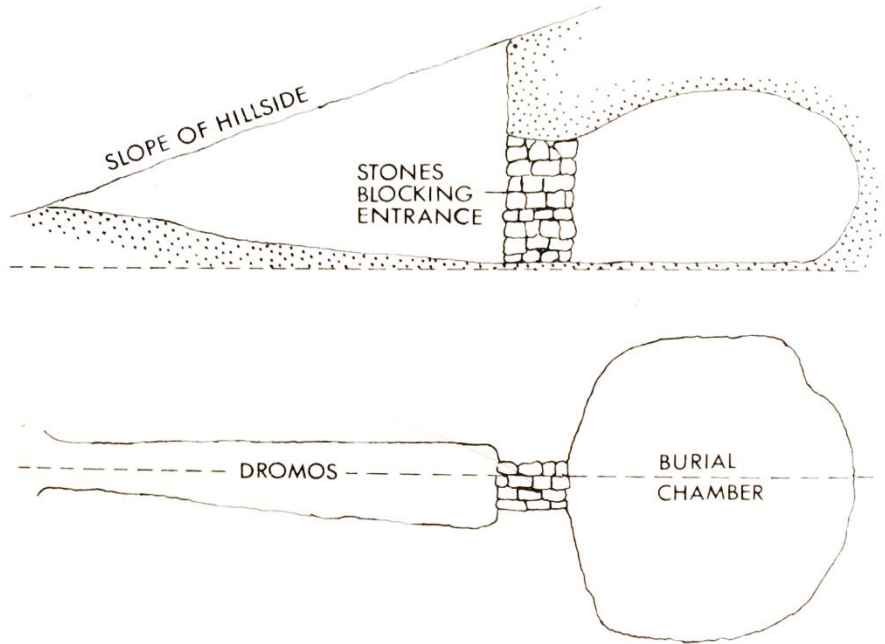
Şekil 4 Bir oda mezar (Desborough 1972:268, fig. 27.)

Şekil 4 Sandık mezarı (Desborough 1972:269, fig. 28).

Öte yandan Desborough, CT'lerden sanduka mezarlara ve çoklu gömmelerden tek gömmelere geçişin (Şekil.6) Miken yaşam tarzından bir kopuş olduğunu savundu. Ancak bunun mutlaka bir kuzey istilasına işaret etmediğini, ancak Orta Helladik Çağ'da Ege'de zaten bilinen yerel uygulamaların yeniden benimsenmesi olabileceğini vurguladı, ancak yönetici sınıfın Miken kültürünün baskın olması nedeniyle yaygındı ve yöneticilerin değişmesiyle daha az yaygın hale geldi.[32]

Hem Snodgrass hem de Morris, defin uygulamalarının MH'den EDÇ'ya sürekliliği konusunda Desborough ile anlaşırken, Dickenson aynı fikirde değildi.[33] MH mezarları ile EDÇ mezarları arasında iki fark olduğunu gösterdi: ilki intermural iken, sonrakiler extramural idi, ayrıca, mezar eşyaları, EDÇ tek gömülerde MH'den çok daha fazla bulunur.[34] Dickinson ile aynı fikirde olan Mureddu, bu değişimi Miken kültüründen bir kopuştan ziyade kademeli bir değişim olarak yorumladı.[35] Dickinson ve Mureddu'ya katılıyorum, çünkü hem Miken öncesi geçmişin ölüm mimarisinin (MH) hem de mezar eşyalarıyla temsil edilen Miken kültürünün kökleşmiş ritüelleri ve geleneğinin bir tür yayılımı varmış gibi görünüyor. Özellikle, Miken döneminde basit mezarların kaybolmaması nedeniyle erken Demir Çağı'ndaki varlıkları yabancı istilasının getirdiği yeni bir gömme uygulaması olarak yorumlanamaz.

	LH IIIC Early	LH IIIC Middle	LH IIIC Late	Sub-Mycenaean/Sub-Minoan	Proto-Geometric
Chamber Tombs	████	████	████	██	██
Tholos Tombs	███			██	
Cist Graves			██	███	██
Pit Graves	███			██	
Trench-and-holes					██
Shaft Graves			██		
Pithos Burials	███				
Intramural	███				
Tumuli	███				██
Pyres				██	██

Şekil 5 Erken demir çağında mezar tiplerinin popülaritesi (Mureddu, N. 2016:122, table.13)

---

[32] Desborough 1972:109-11.
[33] Snodgrass 1972:177-8; Morris 1987:18.
[34] Dickinson 2006B:183.
[35] Mureddu 2016:79

Ölülerin atılması geçiyoruz, gömme ölü bedeni atmak için tipik bir Miken ayiniydi, kremasyon ise çok nadirdi.[36] Bununla birlikte, Miken döneminin sonunda ve MÖ 12. yüzyılın başlarında uygulama tüm Ege'ye yayılmaya başladı. Sonra, PG'da gömme yöntemi ana ayiniydi ve Arkaik ve Klasik Yunanistan'da devam etti (Şekil. 7).[37] Kremasyonın bu şekilde yayılması, karanlık çağı iki uygarlık arasında bir boşluk olarak görmenin bir başka nedeniydi. Yine de, Lewartowski, ölü yakma ayininin Yunanistan'a Neolitik Çağ kadar erken bir tarihte tanıtıldığını öne sürdü. Ayrıca, Miken dönemiyle ilgili olarak, ölü yakmanın muhtemelen doğu ile yapılan ticaretin bir etkisi olduğunu savundu. Kremasyon gömüler, mezar eşyaları arasında Levanten objelerle ilişkilendirildiğinden ve ayrıca en erken kremasyon gömülerin coğrafi dağılımı doğuya işaret edildiğinden.[38] Bu nedenle, Miken'de Kremasyon bir uygulama olarak vardı, ancak yöntemlerin ertelendiğini belirtmeliyiz. Yakılan kemikler kül vazosuyu veya çömleğe gömülürken, Miken döneminde oda mezarların zeminine saçılmıştı. Kül vazosu yabancı bir Avrupa uygulaması olabilir, özellikle de bu mezarlarda Avrupa kılıçları bulunduğundan. Özetlemek gerekirse, erken demir çağındaki ölü gömme adetleri Miken, Doğu ve Avrupa kültürlerinin bir yayılımıydı.[39]

		LH IIIC Early	LH IIIC Middle	LH IIIC Late	Sub-Mycenaean/Minoan	Protogeometric
Inhumations						
Cremations						

Şekil 6 Defin türlerinin popülaritesi (Mureddu. 2016:124, table.15)

Cenaze ritüellerine geçiyoruz, ritüelleri kültürel olarak inşa edilmiş bir sembolik iletişim sistemi, kalıplanmış ve sıralanmış kelime ve eylemler dizilerinden oluşur.[40] Bu nedenle, ritüelin farklı sosyal grupların kültürel sistemine kök saldığı için zor öldüğü ve ritüeldeki bir sürekliliğin, yabancı istilası teorisini olası kılmadığı iddia edilebilir. Çöküşten sonra ritüel, bazı yönlerden GTÇ'dan Klasik döneme kadar patlama olmadan devam etti. Örneğin Miken yas ölüm ritüeli, Miken'den EDÇ Arkaik ve Klasik Yunanistan'a kadar cenaze sahnelerinde tipik bir motif olarak devam etti. (Şekil 8:11), Boeotia'dan bir Miken larnakı üzerine boyanmış yas tutanları gösterir. Aynı motif EDÇ'nda da devam etti ve Atina'nın Perati kentindeki larnaklarda ortaya çıktı. Ayrıca Geometrik ve Arkaik dönemlerde vazo resminde yer almıştır.[41]

---

[36] Lewartowski 1998:137.
[37] Desborough 1972:267-8.
[38] Lewartowski 1998:137; Thomatos 2006: 170-1.
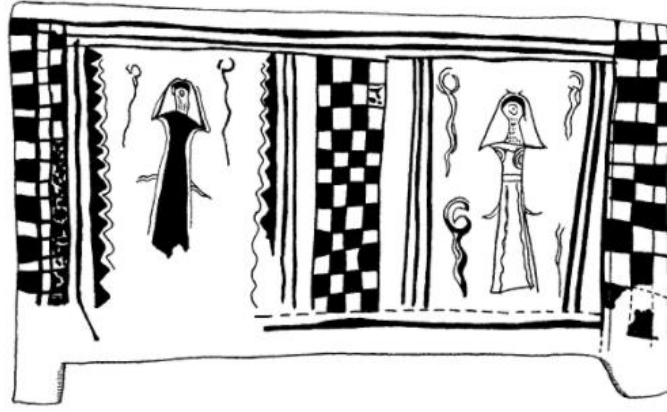[39] Lewartowski 1998:145.
[40] Tambiah 1981:119.
[41] Kurtz and Boardman 1971:27; Rystedt 1997:150; Dickinson 2006A:121.
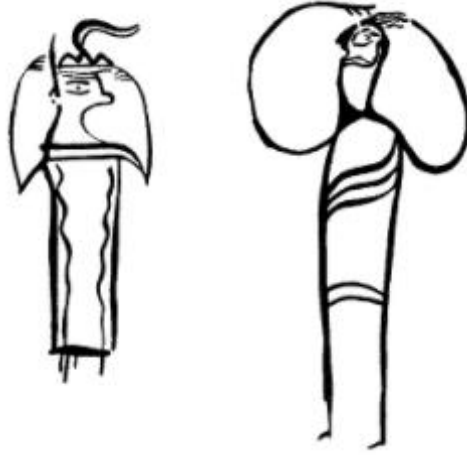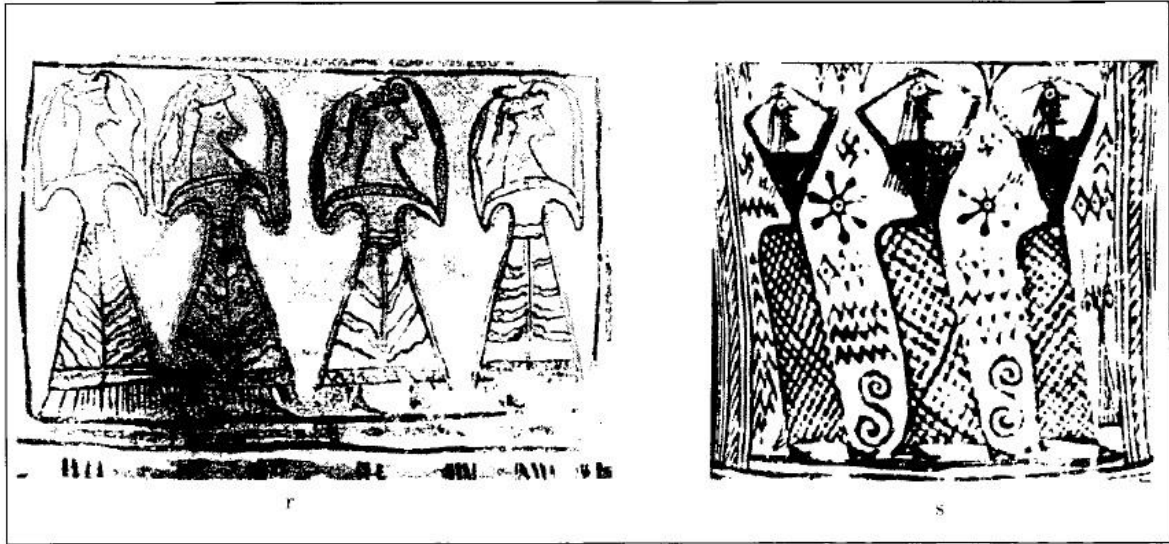
Şekil 8 Perati'den Atinalı larkanlara yas tutanlar (Iakovidis, S. E. 1966:49, Illustration.5).
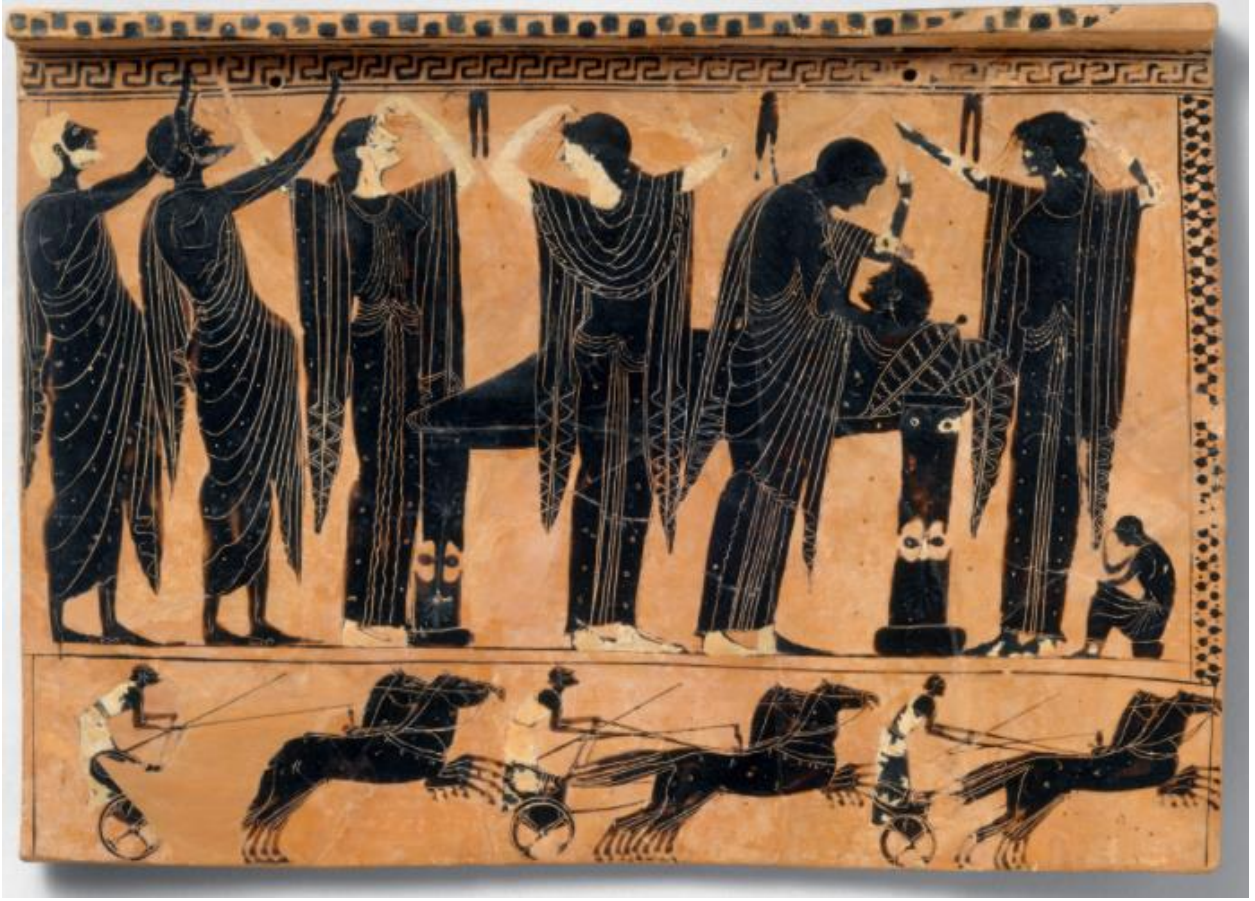

Şekil 9 Niarchos'tan bir Miken kil lahitinde yas tutanlar (Iakovidis 1966:48, Illustration.3)

Şekil 7 Boeotian kil lahit üzerinde Miken yas tutanlar (solda) ve Geometrik bir vazo üzerinde benzer bir bezeme motifi (sağda) (Rystedt, E. 1997:150, Fig.1)

Şekil 8 Bir Arkaik mezar plaketi üzerinde yas tutanlar, MÖ 520-500 dolayları (Shapiro, H. A. 1991:638, fig.11)

Lefkandi

lefkandi, EDÇ'nın mezarları hakkında iyi bir vaka çalışması sunmaktadır. Lefkandi, Lelantine ovasında Euboea'da yer almaktadır. Mezarlıklar, Xeropolis yerleşim yerine yaklaşık 600 metre uzaklıktadır. 1980 yılında Atina'daki İngiliz Okulu tarafından başlatılan kazılar, içinde 147 mezar ve 80 ateş parçasının bulunduğu beş mezarlık alanı ortaya çıkardı.[42] Sandık mezarların baskınlığı, Xeropolis'in kuzeyindeki Skoubris mezarlığında görülmektedir (Şekil.12). EDÇ'den EPG'ye kadar kullanılan mezarlıkta 63 mezar (56 sandık, 3 kuyu ve 4 çukur mezar) ve sadece bir kremasyon bulunmaktadır.[43] Öte yandan, doğu tarafındaki Palia Priovolia mezarlığı, kremasyonun daha popüler hale geldiği ve Skoubris'in terk edildiği Alt geometrik'e kadar PG tarafından kullanılmıştır.[44]

Bununla birlikte, Lefkandi bölgesinin önemi, sözde KÇ'nın biliminde bir dönüm noktası olan Toumba'nın keşfine borçludur. Çünkü bu, Kotsonas'ın "Karanlık Çağın en karanlık kısmı" dediği, kültürel bir çöküş dönemi olması gereken döneme ait.[45] Yine de özenle yapılandırılmış ve Doğu Akdeniz ile bağlantıları yansıtan maddi kültürü ithal etmişti. Tüm bunlar, KÇ döneminde bilim adamlarının Ege hakkında ne düşündüklerine meydan okudu (Şekil.13).

---

[42] Sacks 2005:189; Popham et al 1980:101-3.
[43] Popham et al 1980:103.
[44] Mureddu 2016:102.
[45] Kotsonas 2013:1.
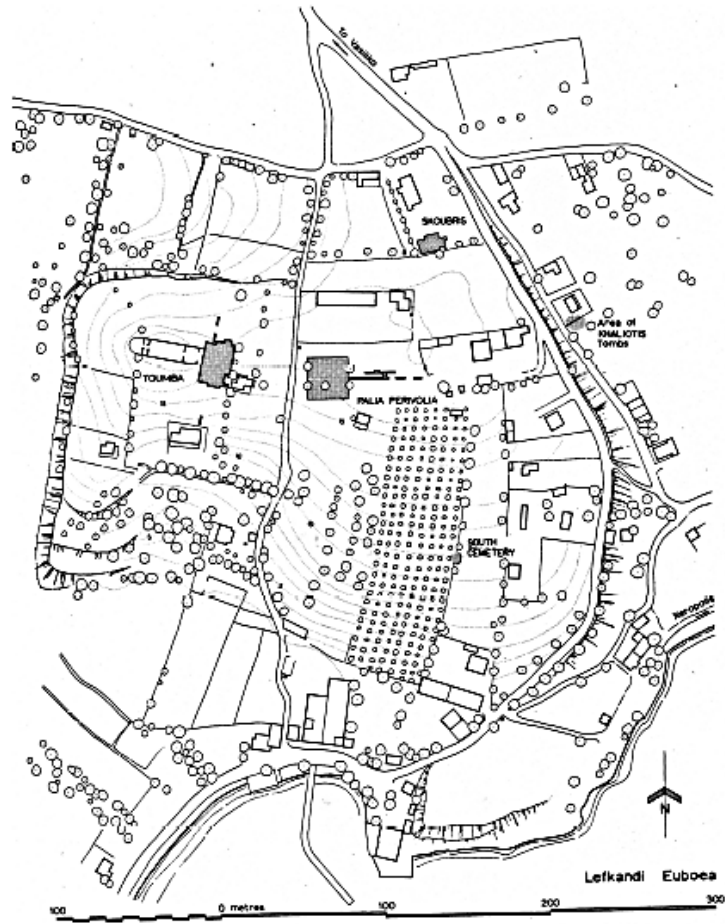
Şekil 9 Lefkandi mezarlığı (Lemos,2006:522, fig.27.3)
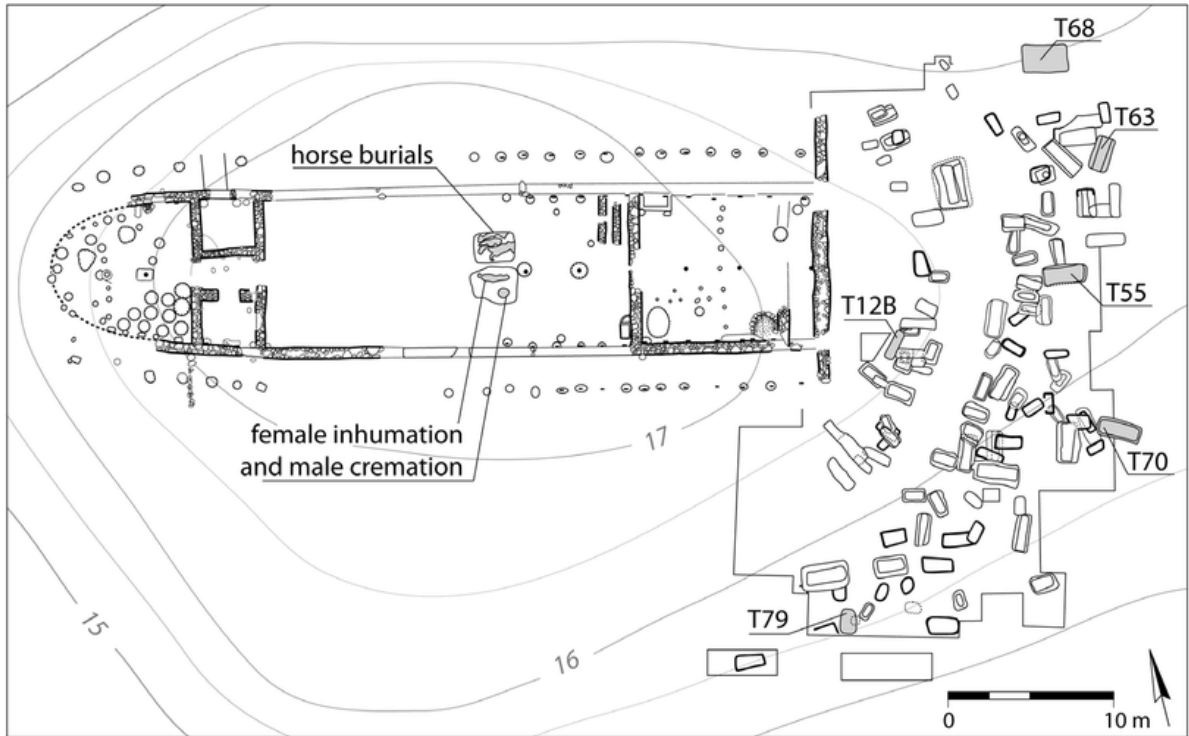
Şekil 13 Toumba mezarlığı (Popham, M. R. et al 1980: pl.79.)

Lefkandi'deki Heroon binası mezarı M.Ö. 950 karanlık çağın dönüm noktasıdır. Zira, Heroon'un kendisi Miken Yunanistan'ından devam eden bir gelenektir. Dört atın kalıntılarını ve yakılmış bir erkek ve bir kadın inhumasyonunun çifte gömülmesini içeriyordu (Şekil.14). Erkeğin cesedi yakıldı ve külleri bronz bir amforaya konuldu, kadının vücudu gömüldü ve altın takılarla süslendi.[46]

Atina ve Lefkandi'deki gömme uygulamaları arasındaki fark şu, zenginliklerin mezar eşyalarıyla teşhir edilmesinin Lefkandi'de EDÇ'ı kadar erken bir tarihte mevcut olması, Atina'da ise Geometrik Dönem'e kadar durumun böyle olmamasıdır. Lemos, bu farkın Atinalıların defin yöntemini kendisinden ziyade cenazeyle daha fazla ilgilenmesinden kaynaklanabileceğini öne sürdü.[47] Cenazenin kendisi arkeolojik kayıtlarda görünmez olduğu için, sanatta hayatta kalan bazı yas sahneleri dışında, onun görüşünü kanıtlayacak hiçbir arkeolojik kanıt olmamasına ragmen, sanırım haklıydı. MÖ 6. yüzyılda Solon'un cenaze masraflarını kısıtladığı düşünülürse, görünüşe göre cenazeler pahalıydı ve sosyal statü göstermenin bir yoluydu.[48]
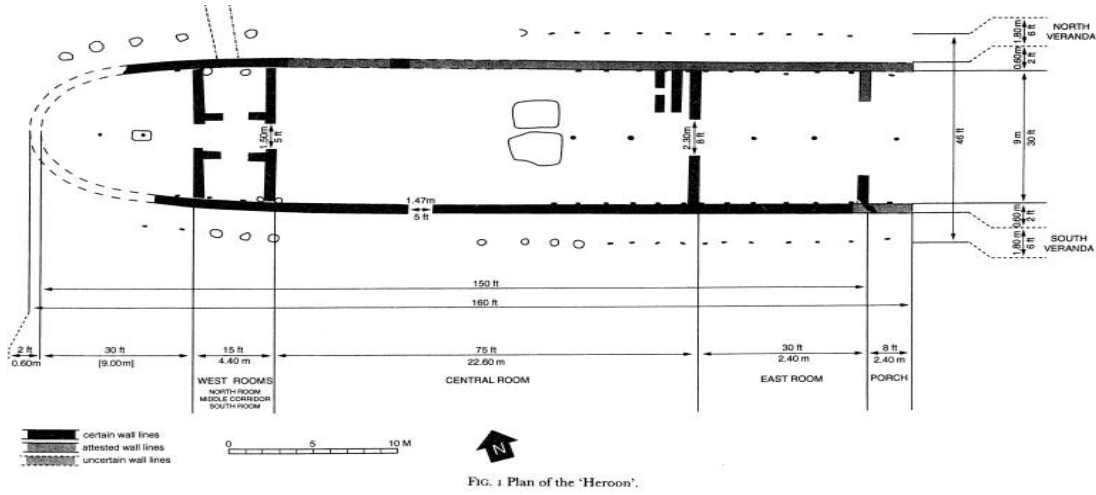
Şekil 14 Heroon, Lefkandi'nin anıtsal binası (De Waele, J. 1998:376, fig.1)
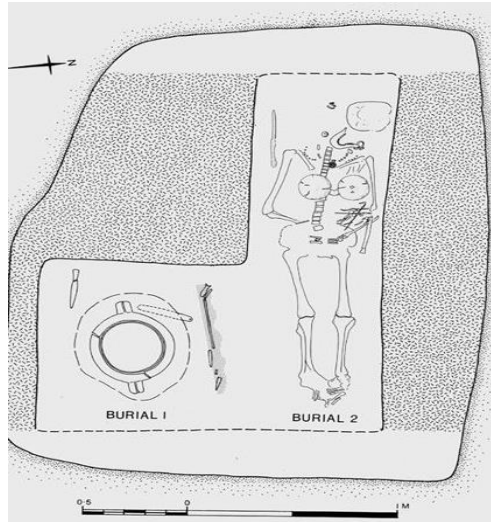
Şekil 15 Heroon'un defini, Lefkandi (Dickinson, O. 2006B, fig.6.5)

---

[46] De Waele 1998:379; Demand 2011:227; Mureddu 2016:103.
[47] Lemos 2006:526.
[48] Plut. Sol. 21.

Özetle, anıtsal yapılardan basit mezarlara doğru bu yavaş değişim, bir sadelik eğilimini yansıtıyordu.[49] Bu basitlik, elit bir grup olduğuna dair net bir kanıt sağlamayan EDÇ sonrası defin geleneklerinin özelliklerinden biriydi.[50] Ayrıca, aynı seçkin grubun çöküşten önce bulunan aynı yerde gömülmesinin sürekliliği unsuru, çalışma dönemimizde görünmezdir. Dickenson'a göre bu, yerleşik bir seçkin grup olmadığı için o dönemin istikrarsızlığını yansıtıyor.[51] Öte yandan Morris, bu sadelik eğilimini, bireylerin Miken siyasi gücünden bir kopuş ve Yunan şehir devletlerinin doğuşuyla sonuçlanan yeni bir siyasi ideolojiye doğru bir adım olarak yorumladı.[52] Burada belirtilmesi gereken bir diğer nokta da, Mikenlilerin ölülerini cinsiyet veya yaşla açıkça ilişkilendirilemeyecek bir dizi duruş ve yönelimle gömdükleridir.[53] Bu çeşitlilik EDÇ'ında da devam etmiştir. Bu nedenle, istikrarlı bir defin uygulamasının olmamasının, bir istila olsaydı var olacak olan gücün yokluğunu gösterdiğini söyleyebiliriz.

Sonuç

Sözde Karanlık Çağ'ın, süreklilik unsurlarının eşlik ettiği kademeli bir değişim dönemi olduğunu göstermeyi umuyorum. Cenaze arkeolojisini, morg kanıtlarında somutlaştırılan hayatın farklı yönlerini göstermek için kullanmaya çalıştım. Lefkandi'de, gömmenin tipik bir gömme türü olduğu Miken gömme uygulamalarına bir eğilim vardı. Ayrıca, inhumasyondan ölü yakmaya geçiş, LH IIIC tarafından küçük bir ayin olarak başlatılan, PG tarafından ana hak olan yavaş bir değişimdi. Ek olarak, mezarlarda inhumasyonlarla birlikte erken Miken kremasyonları vardı. Dolayısıyla, EDÇ sırasında ölü yakmaya geçişin, yeni bir etnik köken veya istilanın ortaya çıkmasıyla sonuçlanan bir değişiklik olduğu anlamına gelmemektedir. Dahası, sanduka mezarların ve tek gömmelerin yaygınlaşması, mezar mimarisinde Miken ölüm ritüelini terk etmeyen yavaş bir değişimdi. Miken maddi kültürünün dışlanması yoktu, daha çok sonrakilerle bir arada var oldu. Belirgin bir şekilde, PG'in sonuna kadar defin gelenekleri, bölgesel farklılıklara rağmen tek tip bir uygulama getirdi. Bu tekdüzelik, Ege arasındaki bağlantıların yeniden kurulmasının başlangıcı olarak yorumlanabilir.

Tüm Ege'ye tek bir ana sonuç çıkarmanın bazı mülahazaları olduğunu belirtmekte fayda var. İlk olarak, arkeolojik kanıtlar bulduklarımızla sınırlıdır, bu sitelerde bir zamanlar olanları temsil etmez. Lefkandi adlı bir sitenin keşfi, bilim adamlarının bu zaman dilimi hakkında onlarca yıldır düşündüklerini değiştirdi. İkincisi, Ege'de kazı ve araştırma sayısı aynı düzeyde değilken, bazı siteler kapsamlı bir şekilde kazılmış ve çalışılmış, bazıları ise değil. Dolayısıyla her bölgenin kendi başına daha fazla araştırılması gereken bir vaka olduğunu düşünüyorum. Daha sonra karşılaştırmalı bir bölgesel çalışma yapılabilir. Örneğin, Lefkandi ve Atina vakalarında benzerliklere dikkat çekilmiş, ancak bunlar aynı anda ortaya çıkmamıştır.

---

[49] Mureddu 2016:70.
[50] Dickinson 2006A:120.
[51] Dickinson 2006A:120.
[52] Morris 1987:173.
[53] Cavanagh ve Mee 1983:90.

BIRINCIL KAYNAKÇA

Plutarch. Solon. Trans. B. Perrin [Loeb Classical Library], Cambridge. 1912.

KAYNAKÇA

Ainian, A. M. and I. Leventi (2009). The Aegean. K. A. Raaflaub and H. Van Wees (eds.), *A companion to Archaic Greece içinde (s.* 212-238.). Malden & Oxford: Blackwell.

Cavanagh, W. (2008). Death and the Mycenaeans. C. W. Shelmerdine (ed.), *The Cambridge Companion to The Aegean Bronze Age içinde (s.* 327-339). Cambridge University Press: Cambridge.

Cavanagh, W. and Mee, C. (1998). A Private Place: Death in the Prehistoric Greece, Studies in Mediterranean Archaeology, 125. Gothenburg: Paul Åströms Förlag.

Childe, G. (1956). Piecing Together the Past: The Interpretation of Archaeological Data. Routledge: London.

D'Amato, R. and Salimbeti, A. (2016). *Early Iron Age Greek Warrior 1100–700 BC.* London: Bloomsbury.

Davies, J. K. (2009). The Historiography of Archaic Greece. K. A. Raaflaub and H. Van Wees (eds.), *A companion to Archaic Greece içinde (s. 3-21).* Oxford: Blackwell Publishing Ltd.

De Waele, J. (1998). The Layout of the Lefkandi 'Heroon'. *The Annual of the British School at Athens,* 93, 379-384.

Demand, N. H. (2011). *The Mediterranean Context of Early Greek History.* West Sussex: Wiley-Blackwell.

Desborough, V. R. d'A. (1972). *The Greek Dark Ages.* Cambridge: University of Cambridge.

Dickinson, O. (2006A). The Mycenaean Heritage of Early Iron Age Greece. S. Deger-Jalkotzy and I. Lemos (eds.), *Ancient Greece: From the Mycenaean Palaces to the Age of Homer* içinde (s. 115-122). Edinburgh: The University of Edinburgh Press.

Dickinson, O. (2006B). The Aegean from Bronze Age to Iron Age: continuity and change between the twelfth and eighth centuries BC. London and New York: Routledge.

Dietrich, B. C. (1970). Some Evidence of Religious Continuity in the Greek Dark Age. *Bulletin of the Institute of Classical Studies,* 17, 16-31.

Finley, M. (1964). Between Slavery and Freedom. Comparative Studies in Society and History, 6, 233-249.

Finley, M. (1957). Mycenaean Palace Archives and Economic History. *The Economic History Review, 10, 128–141.*

French, E. (2002). Mycenae: Agamemnon's Capital: The Site and its Setting. Stroud: Gloucestershire.

Gjerstad, E. (1944). The Initial Date of the Cypriote Iron Age. *Opuscula Archaeologica,* 3, 73-106.

Iakovidis, S. E. (1980). *Excavations at the Necropolis of Perati.* Los Angeles: University of California Press.

Kotsakis, K. (1991). The powerful past: theoretical trends in Greek archaeology. I. Hodder (ed.), *Archaeological theory in Europe: the last three decades* içinde (s. 65-90). London-New York: Routledge.

Kotsonas, A. (2013). Dark Age Greece. R. S. Bagnall, K. Brodersen, C. B. Champion, A. Erskine and S. R. Huebner (eds.), *The Encyclopaedia of Ancient History* içinde. West Sussex: John Wiley & Sons, Ltd.

Kotsonas, A. (2016). Politics of Periodization and the Archaeology of Early Greece, *American Journal of Archaeology,* 120, 239–270.

Lemos, I. S. (2002). The Protogeometric Aegean: The Archaeology of the Late Eleventh and Tenth Centuries BC. Oxford: Oxford University Press.

Lemos, I. S. (2006). Athens and Lefkandi: A Tale of Two Sites. S. Deger-Jalkotzy and I. Lemos (eds.). *Ancient Greece: From the Mycenaean Palaces to the Age of Homer* içinde (s. 505-530). Edinburgh: Edinburgh University Press.

Lewartowski, K. (1998). Cremation and the End of Mycenaean Culture. *Swaitowit* 41, 135-145.

Lewartowski, K. (2000). Late Helladic Simple Graves: A Study of Mycenaean Burial Customs. Oxford: Oxford University Press.

Morgan, C. (2009). The Early Iron Age. K. A. Raaflaub and H. Van Wees (eds.), *A companion to Archaic Greece* içinde (s. 43-63). Sussex: Blackwell Publishing Ltd.

Morris, I. (1997). Periodization and the Heroes: Inventing a Dark Age. M. Golden and P. Toohey (eds.). *Inventing Ancient Culture: Historicism, Periodization and the Ancient World* içinde (s. 96:131). London: Routledge.

Morris, I. (2000). Archaeology as Cultural History: Words and Things in Iron Age Greece. Oxford: Oxford University Press.

Murray, G. (1907). The rise of the Greek epic: being a course of lectures delivered at Harvard University. Oxford: Oxford University Press.

Murray, S. C. (2018). Lights and Darks: Data, Labeling, and Language in the History of Scholarship on Early Greec. *Hesperia,* 87, 17-54.

Nilsson, M. P. (1933). *Homer and Mycenae.* London: Methuen.

Papadimitriou, N. (2001). Built Chamber Tombs of Middle and Late Bronze Age Date in Mainland Greece and the Islands. Oxford: BAR Publishing.

Papadimitriou, N. (2015). The formation and use of dromoi in Early Mycenaean tombs. *The Annual of the British School at Athens,* 110, 71–120.

Papadopoulos, J. (1993). To kill a cemetery: The Athenian Kerameikos and the Early Iron Age in the Aegean. *Journal of Mediterranean Archaeology,* 6, 175–206.

Popham, M. R., L. H. Sackett and P. G. Themelis. (1980). The Excavation and Layout of the Cemeteries. M. R. Popham, L. H. Sackett and P. G. Themelis (eds*.). Lefkandi I: The Iron Age (Text) içinde (s. 101-215)*. London: Thames and Hudson.

Popham, M. R., L. H. Sackett and P. G. Themelis. 1980. The Excavation and Layout of the Cemeteries. M. R. Popham, L. H. Sackett and P. G. Themelis (eds.), *Lefkandi I: The Iron Age (Plates) içinde (s. -)*. London: Thames and Hudson.

Popham, M.R., Sackett, L. H. and Themelis, P. G. (1979). Lefkandi I: The Iron Age, Plates, The Settlement. *BSA Supplementary* 11, 157-192.

Raaflaub, K. A. and H. Van Wees (2009). Preface. K. A. Raaflaub and H. Van Wees (eds.). *A companion to Archaic Greece* içinde (s. xx-xxii.*).* Sussex: Blackwell Publishing Ltd.

Rystedt, E. (1997). Approaching the Question of Bronze-to-Iron-Age Continuity in Ancient Greece. *Current Swedish Archaeology,* 5, 147-154.

Sacks, D. (2005). *The Encyclopedia of the Ancient Greek World*. New York: Facts On File Inc.

Shapiro, H. A. (1991). The Iconography of Mourning in Athenian Art. *American Journal of Archaeology,* 95, 629-656.

Snodgrass, A. (2002). A Paradigm Shift in Classical Archaeology?. *Cambridge Archaeological Journal,* 12, 179-194.

Snodgrass, A. (2015). Putting Death in its Place: The Idea of the Cemetery. C. Renfrew, M. J. Boyd and I. Morley (eds.). *Death Rituals, Social Order and the Archaeology of Immortality in the Ancient World: 'Death Shall Have No Dominion'* içinde (s. 187-199). Cambridge: Cambridge University Press.

Snodgrass, A. M. (1987). An Archaeology of Greece: The Present state and Future Scope of a Discipline. Berkeley: University of California Press.

Souyoudzoglou-Haywood, C. (1999). *The Ionian Islands in the Bronze Age and Early Iron Age: 3000-800 BC.* Liverpool: Liverpool University Press.

Tambiah, S. J. (1981). A performative approach to ritual. *Proceedings of the British academy,* 65, 113-169.

Wardle K, T. Higham and B. Kromer. (2014). Dating the End of the Greek Bronze Age: A Robust Radiocarbon-Based Chronology from Assiros Toumba, *PLOS ONE,* 9, 1-7.

Whitley, J. (1991). Style and society in dark age Greece: the changing face of a pre-literate society 1100-700 BC. Cambridge: Cambridge University Press.

Investıgatıon Of Dıfferent Branch Teachers' Opınıons On The Concept Of Game

Sedat EŞİYOK
Okan SARIKAYA
Ömer ÇOBAN
Erdinç UÇAR
Kerim DİNÇ
Mesut TÜRK
Hatice ALINCAK

Introduction

Play has been a means of perceiving the world, learning and expressing themselves for many living things since the existence of the world. When natural life is examined, it is seen that animals play games alone or in groups. During these games, they exhibit many movements that require running, sudden change of direction, jumping, hiding and power-based struggle. It is through these games that they acquire knowledge and skills that are vital for their survival. In the same way, human beings play games to explore, satisfy curiosity, learn and have fun, starting from the mother's womb until the end of their lives. While children satisfy their curiosity and learn about the world, adults play games for quality life, fun and healthy life in the increasing time for themselves in daily life (Keleş & Yurt, 2019; Özyürek et al., 2018).

It is defined as "activities that are carried out with physical and mental abilities for a specific purpose (such as entertainment, education, health), in a limited space and time, with specific rules, with physical and mental abilities, in time outside of people's daily pursuits, forming groups through voluntary participation, developing social cohesion and emotional maturity, based on talent, intelligence, attention, skill and coincidence, keeping the participants and often the audience under the influence, accompanied by a sense of tension, not providing material benefits in the end, giving pleasure" (Hazar, 2016). Historically, the foundations of the game date back to ancient times. Since the first humanity, interaction has continued continuously and play has been one of the means of human interaction. For this reason, it has a place in all societies of history (Keleş & Yurt, 2019).

In general, play activities, which are important in every age period, are even more important for the development of children at a young age. For this reason, it can be seen as an indispensable need for children. Scientists state that one of the easiest methods of getting to know a child is play. Especially at school ages, playing creative games according to some personal characteristics can cause children to show positive attitudes towards games (Hazar, 2000).

When the research on play is examined, it is seen that there are many definitions of play, but it is difficult to make a common definition, and different meanings are attributed to each definition. The lack of a common definition leads to the conclusion that the subject of play is very comprehensive and has wide boundaries. The fact that there are so many definitions and theories reveals the importance and value of play and answers the question of why so much research has been done on it (Aydınlı & Ramazanoğlu, 2016; Ayan et al., 2015). Play is an action that people of all ages can participate in and enjoy. Play should be seen as one of the

natural needs of human beings to sustain their lives, such as getting energy from food, renewing the body by resting, having fun and having a good time and meeting the need for love (Kacar, 2020; Hazar et al., 2017).

Play has been a means of perceiving the world, learning and expressing themselves for many living things since the existence of the world. When natural life is examined, it is seen that animals play games alone or in groups. During these games, they exhibit many movements that require running, sudden change of direction, jumping, hiding and power-based struggle. It is through these games that they acquire knowledge and skills that are vital for their survival. In the same way, human beings play games to explore, satisfy curiosity, learn and have fun, starting from the mother's womb until the end of their lives. While children satisfy their curiosity and learn about the world, adults play games for quality life, fun and healthy life in the increasing time for themselves in daily life (Can Bilgin, 2015). Since the existence of humanity until today, the concept of play is one of the most satisfying sources that continues to develop and undergo some changes (Tuğrul, 2010). Play activities are an activity process that allows children to be satisfied in line with their needs (Ayan et al. 2017). Through play, children communicate better with their environment, get to know them better, and incorporate what they learn into their play (Üçer, 1985).

All over the world, especially in the early stages of childhood, play is seen as the center of direct education programs and is considered to be the most effective tool in the implementation and planning of the process. One of the most fundamental principles of preschool education in our country is that it is play-based, as in many countries. According to the Preschool Education Program of the Ministry of National Education, "The child learns through play, recognizes the world he/she is in through play, expresses himself/herself through play, and acquires some creative characteristics and skills during play." (MEB, 2013).

Play activities, which are generally important in every age period, are even more important for the development of children at a young age. For this reason, it can be seen as an indispensable need for children. Scientists state that one of the easiest methods of getting to know a child is play. Especially at school ages, playing creative games according to some personal characteristics can cause children to show positive attitudes towards games (Hazar, 2000). In addition to being an important tool in understanding the daily needs of the child, play helps to forget the difficulties and tensions they face. In this way, he/she can easily reveal his/her energy. For this reason, play acts as a bridge between what the child visualizes in his/her imagination and what he/she reflects in daily life (Yavuzer, 1987).

Playful activities should be prioritized in the preschool and primary education period, which is the period when children need physical movements the most. However, irregular and uniform sports facilities and playgrounds narrow children's dreams about play at an early age, as well as their movement and physical characteristics for sports (Hollingsworth and Hoover, 1999).

Yavuzer (1987) defines play as an activity that provides children with the opportunity to learn subjects that no one else can teach them through their own experiences. Play is a necessity, especially for children, in which they prepare for the next developmental period, try out what they will do beyond time, and ensure various psychological and psycho-motor developments. From past to present, play has a universally important place in human life. A look at play behavior in humans and even animals reveals that play behavior is a fundamental drive, as supported by neuro-scientific play-based findings (Landreth & Ray, 2017).

Play activities are a need of the child. The child expresses himself/herself more comfortably through play. Everything obtained in the process of play is permanent. The child recognizes his/her environment through play and continues his/her relationships with peers in

this way. Thus, it tries to fulfill some of its needs through play (Alıncak et al. 2017) Therefore, all kinds of gains given to the child should be given through play (Ayan et al. 2015). According to psychoanalytic theory, play activities are an effective tool for coping with negative events in the environment (Barnett, 2013). Play is the most important element in preparing the child for life, giving direction, and adopting the right behavioral patterns in social life (Alıncak & Tuzcuoğulları, 2016).

Play is giving the child the opportunity to learn subjects that no one else can teach them through their own experiences (Yavuzer, 2007: 191). In a more comprehensive sense, play is defined as a part of real life and the most effective learning process for the child, which is the basis of physical, cognitive, language, emotional and social development, which is the basis of physical, cognitive, language, emotional and social development, which is a part of real life and the most effective learning process for the child (Aral, Gürsoy, Köksal, 2001, p. 34). As important as it is to meet basic needs such as nutrition and shelter for the healthy development of the individual, play is just as important as it is a need that enables the child's mental and spiritual development and self-recognition. From the moment they are born, no one tells children that they must play. As an intrinsic need, the child turns to play spontaneously. Regular physical activity and play is an effective tool in children's healthy growth and development, improvement of sportive performance, protection from obesity, getting rid of unwanted bad habits and socialization (Alıncak, 2017).

This study was prepared to determine the views of different branch teachers on the concept of play. For this purpose, answers to the following questions were sought.

1.What are your views on the definition of play in general?

2.Should game teaching method be used in lessons?

3.Do you use game teaching method?

4.What are their opinions about the effects of games on learning?

Method

Qualitative research is defined as research in which qualitative data collection methods such as observation, interview and document analysis are used and a qualitative process is followed to reveal perceptions and events in a realistic and holistic way in a natural environment. Qualitative research is an approach that emphasizes investigating and understanding social phenomena within their environment with an understanding based on theorizing (Yıldırım & Şimşek, 2013). The interview method is prepared to obtain the same type of information from different people by focusing on similar topics (Patton, 1987:111; cited in Yıldırım & Şimşek, 2013).

Research Group

In the study, the views of different branch teachers working in Gaziantep Provincial Directorate of National Education on the concept of play were examined. For this purpose, the study group of the research consists of teachers working in Gaziantep Provincial Directorate of National Education. In the selection of the study group, maximum diversity sampling, one of the purposeful sampling methods, was used. According to Yıldırım and Şimşek (2013), the aim is to create a relatively small sample and to reflect the diversity of individuals who may be parties to the problem being studied in this sample to the maximum extent. The number of teachers in the sample group in this study was determined as 20.

Table 1: Personal Characteristics of the Research Group (n= 20)

Variables Groups	Variables Groups	n	%
Gender	Male	13	65
	Woman	9	35
Place of Duty	Province center	14	70
	District	6	30
Education Status	License	15	75
	Postgraduate	5	25
Years of Professional Seniority	1-5 Years	4	20
	6-10 Years	7	35
	11-15 Years	6	30
	16-20 Years	2	10
	20 Years and above	1	5
Branch	Turkish	6	30
	Physical Education	5	25
	Turkish Language and Literature	4	20
	Mathematics	3	15
	Technology and Design	2	10

When Table 1 is analyzed, 65% of the participants are male and 35% are female teachers. When we examine the place where the participants work; 70% of them work in the city center and 30% in the districts. When we look at the educational status of the participants; 75% of the participants are bachelor's degree graduates and 25% are master's degree graduates. It is seen that 20% of the participants have a professional seniority between 1 and 5 years, 35% have a professional seniority between 6 and 10 years, 30% have a professional seniority between 11 and 15 years, 10% have a professional seniority between 16-20 years, and 10% have a professional seniority of 20 years or more. Of the teachers who participated in the study, 30% had Turkish, 25% had Physical Education, 20% had Turkish Language and Literature, 15% had Mathematics, and 10% had Technology and Design.

Preparation and Implementation of the Open-Ended Questionnaire

In the study, a semi-structured interview form consisting of 4 items was used to collect qualitative data. Through the interview technique, which is frequently used in qualitative research, the researcher tries to understand unobservable situations such as attitudes, experiences, intentions, thoughts, mental perceptions, interpretations and reactions (Yıldırım & Şimşek, 2013:148). In order to develop the interview form, a comprehensive literature review was conducted and an interview form was prepared. While preparing the semi-structured interview form used as a data collection tool, the researcher first conducted a literature review and created a semi-structured interview form question pool with questions that could be asked to teachers about the subject. Then, the questions were examined by three experts and the semi-structured interview form was finalized. None of the participants were forced to participate in the study, and the principle of confidentiality was carefully observed during the application and collection of the questionnaires. The interviews were recorded with a voice recorder and then these recordings were transcribed.

Data Analysis

The data obtained from the interview form used in the research were recorded with a voice recorder. Qualitative data were then analyzed by content analysis method. The frequently used content analysis technique was used to analyze the data obtained from the questions in the interview form (Yıldırım and Şimşek, 2013:259).

Results and Interpretation

In this section, the findings obtained as a result of the interviews conducted to determine the views of different branch teachers on the concept of play are presented.

Table 2. Distribution of the research group's opinions on the definition of the game in general.

Themes	n	%
To know oneself	15	19.8
It is fun and socialization	14	18.5
Sharing and happiness	14	18.5
Excitement	12	15.7
Getting to know the environment	11	14.4
A teaching tool	10	13.1
Total	**76**	**100**

When the views of the teachers on the definition of play are examined in Table 2, 19.8% of the teachers stated that play is self-knowledge, while 18.5% stated that play is fun and socialization, sharing and happiness. In addition, teachers stated that play is excitement, getting to know the environment and a teaching tool.

Table 3. Distribution of teachers' opinions on the question "Should game teaching method be used in lessons?

Themes	N	%
Must be used	16	47.1
Should be used according to the subject	10	29.4
Should be used as needed	8	23.5
Total	**34**	**100**

When the opinions of the teachers regarding the use of game teaching method in Table 3, the lessons are analyzed, the majority of them (47.1%) stated that it should be used. In addition, 29.4% of the teachers participating in the study stated that teaching with games should be used according to the subject and 23.5% stated that teaching with games should be used when needed.

Table 4. Distribution of teachers' opinions on the question "Do you use game teaching method in your lessons?".

Themes	N	%
Yes	12	60
Sometimes	6	30
No	2	10
Total	**20**	**100**

When the teachers' use of the game teaching method in the lessons is analyzed in Table 4, the majority of them, 70%, stated that they used educational games. In addition, 30% of the teachers who participated in the study stated that they sometimes used the game teaching method, while 2 teachers did not use it at all.

Table 5. Distribution of teachers' views on the effects of games on learning.

Themes	N	%
Learning is permanent and effective	16	36.4
Learning is fun	15	34.1
Increased attention and motivation	13	29.5
Total	**44**	**100**

When the opinions of the teachers about the effect of the game on learning are analyzed in Table 5, the majority of them, 36.4%, stated that learning was permanent and effective. At the same time, regarding the effect of the game on learning, teachers stated that learning was fun, attention and motivation increased.

Discussion and Conclusion

In this part of the study, the results obtained as a result of interviews with different branch teachers working in public schools affiliated to the Ministry of National Education regarding the concept of play are presented.

When we look at the views of the teachers on the definition of play, the majority of them state that play is about getting to know oneself, while at the same time they see play as fun and socialization, sharing and happiness. In addition to this, it has come to the forefront that teachers see play as excitement, getting to know the environment and as a teaching tool. From this point of view, it can be said that teachers see play as a means of self-knowledge, fun, happiness and teaching. The first studies on teaching with games were conducted in the fields such as teaching reading and writing (Özenç, 2007), mathematics (Altunay, 2004; Kılıç, 2007; Yiğit, 2007), computer (Yağız, 2007), and the effect of play on child development in preschool period (Aytekin, 2001). Ayan and Dündar (2009) state that children express themselves more easily during play and that children have a freer and more creative personality in a play environment; therefore, the use of play in educational environments in order to develop creativity skills in students is an indispensable need.

When the opinions of the teachers regarding the use of game teaching method in lessons were examined, it was seen that the majority of them stated that it should be used. In addition, it was seen that the teachers participating in the study stated that the game teaching method can be used according to the subject or if needed. Based on the opinions of the research group, we can state that teaching with games can be used in lessons.

When the teachers' use of the game teaching method in the lessons was analyzed, it came to the forefront that the majority, 60%, used the game teaching method. In addition, it was seen that some teachers participating in the study sometimes used the game teaching method. Nur (2019) concluded in his study that the academic achievement of the students was higher in the lessons taught with the educational game technique and that educational games make children feel good emotions such as joy, success and creativity.

When we look at the opinions of the teachers about the effect of the game on learning, the majority of them stated that learning is permanent and effective. At the same time, regarding the effect of the game on learning, the teachers stated that learning was fun and increased attention and motivation. Therefore, based on the opinions of the teachers participating in the research, it can be said that the majority of them contribute to the effects of the game on learning. Fırat (2007) stated that in education with games in foreign language teaching, they constantly put the students at the forefront, try to ensure that they are active, learn by doing and practicing, that with this method, they ensure that every student participates in the lesson willingly and willingly, that students learn words easily, keep them in their minds without forgetting them and that they can answer questions without any difficulty when asked.

Ören and Avcı (2004) concluded in their study that teaching with games was effective in increasing academic achievement in science teaching compared to traditional teaching. Tural (2005) concluded that teaching with games and activities in mathematics teaching is more effective than traditional teaching in gaining behaviors at the level of "rhythmic counting, natural numbers, addition, subtraction, multiplication (comprehension and application).

As a result, teachers stated that play is a means of having fun and gives happiness to people as well as self-knowledge. In addition, it was seen that teachers saw games as a learning tool, preferred the game teaching method and expressed the opinion that game teaching should be used in lessons. In addition, while it was stated that learning was faster and more permanent with games, it was concluded that learning was fun and increased attention and motivation.

REFERENCES

Alıncak, F. (2017). Attıtudes Of Prımary School TeachersTowardsPlayıng Games ThatInvol-ve PhysıcalActıvıty, EuropeanJournal of EducationStudies, 3(1):202-216.

Alıncak, F., Yıkılmaz, A., Uğurlu, M.F. (2017). Evaluatıon Of Pre-School Teachers`Opınıons On TeachıngWıth Games, EuropeanJournal of AlternativeEducationStudies, 2(1):83-100.

Alıncak, F.,Tuzcuoğulları, T. (2016). TheEvaluatıon Of Vıolent Content Games ForChıldren's Development, EuropeanJournal of PhysicalEducationandSportScience, 2(5):61-67.

Altunay, D. (2004). Oyunla desteklenmiş matematik öğretiminin öğrenci erişisine ve kalıcılığa etkisi. Yayınlanmamış Yüksek Lisans Tezi, Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara.

Ayan S, Alıncak F, Tuzcuoğulları Ö T (2015) Gaziantep'te Oynanan Bazı Yöresel Oyunların Hentbol Branşının Teknik Çalışmasına Yönelik Eğitsel Oyunlar Olarak Değerlendiril-mesi, Uluslararası Türk Eğitim Bilimleri Dergisi, 4, 252-257.

Ayan, S. ve Dündar, H. (2009). Eğitimde Okul Öncesi Yaratıcılığın ve Oyunun Önemi, Selçuk Üniversitesi Ahmet Keleşoğlu Eğitim Fakültesi Dergisi Sayı 28, Sayfa 63 -74.

Ayan, S., Ergin, M., Alıncak, F. (2017). The Evaluatıon Of The Partıcıpatıon Of Game and Physıcal Educatıon Lesson Of The Mıld Severe Degree Mental Retardatıon and Autıstıc Students, European Journal of Special Education Research, 2(2):35-49.

Aydınlı, İ., Ramazanoğlu, F. (2016). Beden eğitimi dersinde geleneksel çocuk oyunlarinin uygulanmasi: Mendil kapmaca oyunu örneği. Akademik Sosyal Araştırmalar Dergisi, 4(27), 443-454.

Barnett, L. A. (2013). Children'sperceptions of theirplay: scaledevelopmentandvalidation. Child Development Research. RetrievedFebruary 13, 2014, fromhttp://www.hindawi.com/journals/cdr/2013/284741/.

Can Bilgin, H. (2015). Ortaokul öğrencilerinin bilgisayar oyun bağımlılık düzeyleri ile iletişim becerileri arasındaki ilişki. (Yayınlanmış yüksek lisans tezi). Pamukkale Üniversitesi, Denizli.

Fırat, M. (2007). Yabancı Dil Öğretiminde Oyunun Kullanımı, Atatürk Üniversitesi, Sosyal Bilimler Enstitüsü, Yabancı Diller Eğitimi Ana Bilim Dalı, Erzurum.

Hazar Z, Hazar K, Gökyürek B, Hazar M, Çelikbilek S, (2017): Ortaokul öğrencilerinin oyunsallık, dijital oyun bağımlılığı ve saldırganlık düzeyleri arasındaki ilişkinin çeşitli değişkenler açısından incelenmesi. Uluslararası İnsan Bilimleri Dergisi, 14(4): 4320-4332.

Hazar, M. (2000). Beden eğitimi ve sporda oyunla eğitim. Ankara: Tutibay.

Hazar, Z. (2016). Fiziksel Hareketlilik İçeren Oyunların 11-14 Yaş Grubu Ortaokul Öğrencilerinin Dijital Oyun Bağımlılığına Etkisi. Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Doktora Tezi. Ankara.

Hollingsworth PM, Hoover KH. (1999). İlköğretimde öğretim yöntemleri, Elemantary teaching methods. (Çev: Tanju Gürkan, Erten Gökçe, Duygu Güler), Ankara: Ankara Üniversitesi Rektörlüğü Yayınları.

Kacar, D. (2020). Geleneksel çocuk oyunlarının internet bağımlılığı, sosyal beceri ve stres düzeyine etkisi. Yayınlanmamış Yüksek Lisans Tezi, Gazi Üniversitesi, Sağlık Bilimleri Enstitüsü, Ankara.

Keleş, S. ve Yurt, Ö. (2017). An investigation of playfulness of pre-school children in Turkey, Early Child Development and Care, 187(8), 1372-1387.

Kılıç, M. (2007). İlköğretim 1. sınıf matematik dersinde oyunla öğretimde kullanılan ödüllerin matematik başarısına etkisi. Yayımlanmamış Yüksek Lisans Tezi, Marmara Üniversitesi, Eğitim Bilimleri Enstitüsü, İstanbul.

Koçyiğit, S., Tuğluk, M. N. ve Kök, M. (2007). Çocuğun gelişim sürecinde eğitsel bir etkinlik olarak oyun. Atatürk Üniversitesi Kazım Karabekir Eğitim Fakültesi Dergisi, 16, 324-342.

Landreth, G.L. ve Ray, D.C. (2017). Çocuk merkezli oyun terapisi. D.A. Crenshaw ve A.L. Stewart (Yay. haz.), Oyun terapisi kapsamlı teori ve uygulama rehberi içinde (s.5-19). İstanbul: Apamer Psikoloji Yayınları.

Lindon, J. (2001). Understandingchildren'splay. Cheltenham: Nelson Thornes.

Milli Eğitim Bakanlığı (2013). Okul Öncesi Eğitim Programı. http://tegm.meb.gov.tr/dosya/okuloncesi/ooproram.pdf adresinden 20 Şubat 2014 tarihinde edinilmiştir.

Nur, G. (2019). Madde ve Isı Ünitesinin Öğretiminde Eğitsel Oyunları Kullanmanın Öğrencilerin Akademik Başarısı Üzerine Etkisi ve Sürece Yönelik Öğrenci Görüşleri. (Yüksek Lisans Tezi).Gazi Üniversitesi/Eğitim Bilimleri Enstitüsü, Ankara.

Ören, F. Ş. ve Avcı, D. E. (2004). Eğitimsel oyunla öğretimin fen bilgisi dersi " Güneş sistemi ve gezegenler" konusunda akademik başarı üzerine etkisi. Ondokuz Mayıs Üniversitesi Eğitim Fakültesi Dergisi, 18, 67-76.

Özenç, E. G. (2007). İlk okuma ve yazma öğretiminde oyunla öğretim yöntemine ilişkin öğretmen görüşlerinin incelenmesi. Yayımlanmamış Yüksek Lisans Tezi, Marmara Üniversitesi Eğitim Bilimleri Enstitüsü, İstanbul.

Özyürek, A., Yıldırım, N., Aydın, Ü., Yazgan, E., Korkut, A., Erşan, E., & Karabulut, Z. E. (2022). Okul öncesi çocukların oynadığı dijital oyunların incelenmesi. TEBD, 20(3), 950 972.

Tuğrul, B. (2010). Oyun temelli öğrenme. İçinde R. Zembat (Ed.), Okul öncesinde özel öğretim yöntemleri, Ankara: Anı Yayıncılık. s. 35-76.

Tural, H. (2005). İlköğretim matematik öğretiminde oyun ve etkinliklerle öğretimin erişi ve tutuma etkisi. Yayımlanmamış Yüksek Lisans Tezi, Dokuz Eylül Üniversitesi, Eğitim Bilimleri Enstitüsü, İzmir.

Üçer, M.(1985). "Eskişehir Folklorunda Çocuk Oyunları", Halk Kültürü, İstanbul 1985/2, 119-125.

Yağız, E. (2007). Oyun-tabanlı öğrenme ortamlarının ilköğretim öğrencilerinin bilgisayar dersindeki başarıları ve öz-yeterlik algıları üzerine etkileri. Yayımlanmamış Yüksek Lisans Tezi, Hacettepe Üniversitesi, Sosyal Bilimler Enstitüsü, Ankara.

Yavuzer, H. (1987). Çocuk psikolojisi (1. Baskı). İstanbul: Remzi Kitabevi.

Yavuzer, H. (2007). Çocuk psikolojisi: Doğum öncesinden ergenlik sonuna. İstanbul: Remzi Yayınevi

Yıldırım, A., Şimşek, H. (2006). QualitativeResearchMethods in SocialSciences. Ankara: Seckin Publications.

Yiğit, A. (2007). İlköğretim 2. sınıf seviyesinde bilgisayar destekli eğitici matematik oyunlarının başarıya ve kalıcılığa etkisi. Yayımlanmamış Yüksek Lisans Tezi, Çukurova Üniversitesi, Sosyal Bilimler Enstitüsü, Adana.

Data-Driven Insights into HR Recruitment Performance: A Machine Learning Approach Based on Real-World Data from an Italian Security Company

Yavuz Selim BALCIOĞLU[1]
Melike ARTAR[2]
Oya ERDİL[3]

Introduction

The field of Human Resources (HR) recruitment has been undergoing a significant transformation in recent years, with the rise of machine learning and artificial intelligence technologies. A study by Avrahami and colleagues (2022) highlights the potential of a machine learning approach to HR recruitment performance by analyzing real-world data. The authors argue that this approach can lead to better prediction and understanding of job candidates' suitability, ultimately improving the overall recruitment process and reducing hiring costs for organizations.

In their research, Buzko and colleagues (2016) emphasize the increasing importance of big data and data analytics in HR management. The authors draw from previous literature that indicates how machine learning algorithms have successfully been applied to a variety of fields, including supply chain management, finance, marketing, and health care (Marr, 2019). By adopting such techniques within HR recruitment processes, organizations could gain insights into complex patterns surrounding candidate suitability and performance (Tambe, Cappelli & Yakubovich, 2019).

Furthermore, a growing body of research demonstrates that traditional recruitment processes suffer from numerous drawbacks, such as biases in candidate selection and lengthy time to hire. Machine learning models like Support Vector Machines (SVM), Random Forests (RF), k-Nearest Neighbors (kNN), and Artificial Neural Networks (ANN) have proven effective in predicting employee performance based on their skill sets and other factors (Goodman & Flaxman, 2017). This highlights the importance of leveraging these advanced algorithms within HR recruitment to foster more accurate decision-making in selecting highly suitable candidates (Shrestha, Krishna & von Krogh, 2021).

An integral aspect of the machine learning approach utilized by Mujtaba and Mahapatra (2019) involves considering various features relevant to HR professionals during the candidate selection process. These features include work experience, education level, job fit, communication skills, among others. Building predictive models incorporating these aspects helps to determine an individual's candidacy based on quantifiable data points derived from real-world scenarios, avoiding undue weight on subjective aspects that may lead to biased decisions (Oswald et al., 2020).

In conclusion, the findings by Nawaz (2019b) address the importance of adopting machine learning techniques in HR recruitment performance. By analyzing real-world data and

---

[1] Dr., Gebze Technical University
[2] Res. Asst., Gebze Technical University
[3] Prof. Dr., Gebze Technical University

understanding complex patterns surrounding candidate suitability, this approach has the potential to improve overall recruitment effectiveness and optimize hiring costs for organizations (Varma, Dawkins & Chaudhuri, 2023). Machine learning's ability to mitigate biases and enhance decision-making capabilities confirms its status as a valuable tool for HR professionals, reshaping the future of recruitment processes globally.

Literature Review

The Importance of Personnel Selection in Company Success

Choosing the right candidates for a job significantly contributes to an organization's overall performance and growth. According to Tambe, Cappelli and Yakubovich, (2019), appropriate staff selection techniques have a positive impact on business outcomes such as productivity, profitability, and overall employee satisfaction. By choosing qualified employees who fit well with the company culture, businesses can improve their chances of achieving long-term success.

One key factor supporting the importance of personnel selection is the relationship between employee "person-environment fit" and job satisfaction. Research by Johnson, Coggburn and Llorens (2022) suggests that a strong fit between individual capabilities and job requirements leads to increased job satisfaction and commitment. This, in turn, results in higher retention rates and improved organizational performance. Hiring employees whose skills, values, and goals are compatible with the company's can lead to more cohesive teams and greater synergy within the workplace (Leicht-Deobald et al., 2019).

Furthermore, the use of evidence-based recruitment methods can lead to significant improvements in personnel selection outcomes. Recent meta-analytic research by Potnuru and Sahoo (2016) showed that validity coefficients for common hiring techniques like ability tests, work samples, personality tests and interviews have been found robust predictors of job performance. By utilizing these proven methods during the hiring process, companies can expect better decision-making which ultimately bolsters their overall success (Rąb-Kettler & Lehnervp, 2019).

In terms of financial gains, investing in efficient personnel selection processes can lead to considerable cost savings for organizations. Cascio (2000) estimated that companies with effective hiring practices could save as much as 5-7% in labor costs when compared to companies with less accurate selection procedures. This highlights how optimal recruitment strategies not only ensure performance improvements but also provide a significant return on investment.

In summary, the importance of personnel selection in company success is evident through literature support and statistical results. Adopting accurate methods for identifying suitable candidates contributes to enhanced job satisfaction, increased performance and commitment, greater cost savings, and ultimately the overall success of an organization (Vrontis et al., 2022). It is vital for businesses to recognize the crucial role that personnel selection plays in achieving their long-term goals and to commit resources towards refining their hiring practices.

Determination of Personnel Selection Criteria

In today's competitive business environment, determining personnel selection criteria has become a significant challenge for organizations. One major difficulty is the need to establish a balance between technical skills and soft skills (Jha, Jha & Gupta, 2020). According to research, focusing solely on technical expertise may result in overlooking essential attributes such as communication, teamwork, and problem-solving (Potnuru & Sahoo, 2016). Therefore,

it is crucial for organizations to use a holistic approach when setting personnel selection criteria to successfully integrate various skill sets required for different jobs.

Another factor that complicates personnel selection criteria is the continual evolution of job roles and expectations due to advances in technology and organizational change (Chowdhury et al., 2023). Employers must constantly update their selection criteria to remain aligned with emerging skill requirements. Vrontis and colleagues (2022) found that outdated assessment techniques or job descriptions can greatly reduce employee performance and alter the quality of new hires. Therefore, organizations must conduct regular job analyses and utilize updated metrics for selecting personnel.

Additionally, diversity and inclusion have become imperative factors in personnel selection decisions (Johnson, Coggburn & Llorens, 2022). Research indicates that diverse teams demonstrate better problem-solving abilities, increased innovation, and stronger decision making when compared to homogenous teams (Pessach et al., 2020). However, implementing inclusive recruitment processes is challenging due to biases prevalent in traditional selection methods. Incorporating structured behavioral interviews and diversity-based evaluation criteria will aid organizations in overcoming these biases (Leicht-Deobald et al., 2019).

Statistical results play a vital role in refining personnel selection strategies to increase their validity and effectiveness (Rąb-Kettler & Lehnervp, 2019). Furthermore, these studies emphasize the importance of combining cognitive ability tests with work sample and personality assessments to achieve higher accuracy in personnel selection decisions (Köchling & Wehner, 2020). Leveraging these statistical findings will enable organizations to improve their hiring processes.

Lastly, the pressure for organizations to make expedited hiring decisions can affect the quality of personnel selection processes (Jha, Jha & Gupta, 2020). In fast-paced business environments, employers may have insufficient time to gather substantial data, consult multiple stakeholders, or explore alternative evaluation techniques. Consequently, this rush may result in compromises on selecting the right candidates based on all relevant criteria. To mitigate this issue, organizations should prioritize continuous improvement of their personnel selection methods and maintain a pipeline of potential candidates who fit the company's requirements.

The importance of machine learning in personnel selection

The importance of machine learning in personnel selection has grown significantly in recent years, with research indicating its potential to revolutionize traditional recruitment processes (Bierema, 2022). By harnessing vast amounts of data and advanced algorithms, machine learning can enhance decision-making within human resources departments and improve the overall quality of new hires (Bankins, 2021).

One key advantage of using machine learning in personnel selection is the reduction of human bias. Bankins (2021) found that incorporating machine learning techniques can help counteract common biases present in human decision-making, such as reliance on stereotypes or confirmation biases. This leads to a more diverse and qualified workforce, which fosters innovation and drives organizational success (Bostrom & Yudkowsky, 2018).

Another benefit of employing machine learning in personnel selection is its capacity to accurately predict candidate performance. A meta-analysis by Pessach et al. (2020) revealed that machine learning algorithms had a higher predictive validity for job performance than traditional selection methods, such as interviews or cognitive ability tests. This improved accuracy can save organizations considerable resources by minimizing turnover and enhancing overall productivity (Tambe, Cappelli & Yakubovich, 2019).

Furthermore, machine learning can streamline recruitment processes by automating time-consuming tasks and administrative duties. Research shows that integrating machine learning-based tools into the hiring process has reduced the time spent screening resumes (Jha, Jha & Gupta, 2020; Leicht-Deobald et al., 2019). This increased efficiency frees up valuable time for HR professionals to focus on other strategic aspects of talent management.

Despite its many benefits, however, it is important to recognize potential ethical concerns surrounding the use of machine learning in personnel selection. Danks & London (2017) argue that algorithmic bias can still manifest in these systems if they are designed or trained on biased datasets. To ensure fairness and equality, organizations must devote adequate resources to monitoring and adjusting their machine learning algorithms, striking the right balance between efficiency and ethics in the recruitment process.

Method

Dataset

The study utilized a dataset sourced from a security company based in Italy, focusing on their HR recruitment domain. The dataset consists of records from HR employees within the company, totaling 1,000 entries. The data captures a variety of attributes including years of experience, training hours, educational level, specialization, feedback scores, technical proficiency, communication skills, and recruitment targets met.

Table 1. HRM dataset variables

Column	Value
Employee ID	1
Years of Experience	7
Training Hours	11
Educational Level	High School
Specialization	Benefits
Number of Candidates Screened	222
Number of Candidates Hired	32
Feedback Score	3.83
Technical Proficiency	8.68
Communication Skills	6.35
Target Met	0
Performance Rating	2.0

Data preprocessing

Prior to analysis, the dataset underwent several preprocessing steps. Categorical variables, including 'Educational Level' and 'Specialization', were encoded into numerical formats using one-hot encoding to render them compatible with machine learning algorithms.

Model Development

Two machine learning algorithms were selected for this study: Random Forest and Gradient Boosting. Both models were trained on 80% of the dataset, with the remaining 20% reserved for evaluation. Model performance was primarily gauged using accuracy, but other metrics like precision, recall, and the F1-score were also employed to offer a comprehensive assessment.

Hyperparameter Tuning

An attempt was made to optimize the Random Forest model through hyperparameter tuning. A grid search approach was considered, exploring various combinations of parameters such as the number of trees, maximum depth of trees, and minimum samples required at leaf nodes (Dietvorst, Simmons & Massey, 2015). However, due to computational constraints, a complete grid search could not be finalized.

Validation

To evaluate the potential influence of the 'n_estimators' hyperparameter on the Gradient Boosting model's performance, a validation curve was plotted. This curve charted the model's accuracy across both training and validation sets for varying numbers of boosting stages.

Data

The dataset comprised 1,000 entries, each representing a hypothetical HR employee. The variables included:

- Years of Experience: A numerical variable ranging from 1 to 20, indicating the number of years an employee has worked in the HR domain.

- Training Hours: Quantifying the hours an employee has invested in professional training, ranging from 5 to 100 hours.

- Educational Level: A categorical variable indicating the highest level of education attained, with categories like 'High School', 'Bachelor's', 'Master's', and 'PhD'.

- Specialization: Denoting an employee's primary area of expertise in HR, such as 'Recruitment', 'Benefits', or 'Training & Development'.

- Feedback Score, Technical Proficiency, and Communication Skills: All three are continuous variables scored between 1 and 10, reflecting feedback from peers, technical acumen in HR tools, and interpersonal communication capabilities, respectively.

- Number of Candidates Screened and Hired: Numerical variables illustrating an employee's recruitment throughput and success rate.

- Target Met: A binary variable, signifying whether an employee met the set recruitment targets.

The dataset's primary objective was to predict the 'Performance Rating' of an employee, a derived variable based on a combination of the aforementioned features.

Data Analysis

Prior to the primary analysis, the dataset underwent a series of preprocessing steps to ensure compatibility with machine learning algorithms. Categorical attributes, specifically 'Educational Level' and 'Specialization', were transformed into numerical formats using one-hot encoding. This encoding method produced binary columns for each category, allowing for a clearer representation of categorical data in numerical form.

Model Development and Evaluation

For the predictive analysis, two machine learning models were employed: Random Forest and Gradient Boosting. Both models were trained using 80% of the dataset, with the residual 20% set aside for evaluation purposes.

Random Forest: The initial results from the Random Forest model were promising, displaying an accuracy of approximately 83% on the testing set. To provide a comprehensive evaluation, other metrics such as precision, recall, and F1-score were also computed. These metrics offered a granular view of the model's performance across different performance ratings.

Table 1. Classification Report for Random Forest

Rating	Precision	Recall	F1-Score	Support
1.0	0.80	0.67	0.73	15
2.0	0.81	0.87	0.84	73
3.0	0.85	0.79	0.82	94
4.0	0.78	0.78	0.78	18

Accuracy	-	-	0.83	200
Macro Avg	0.81	0.78	0.79	200
Weighted Avg	0.82	0.83	0.82	200

Gradient Boosting: The Gradient Boosting model, on the other hand, exhibited superior performance with an accuracy nearing 88% on the testing set. A detailed breakdown of its performance can be found in the classification report below.

Table 2. Classification Report for Gradient Boosting

Rating	Precision	Recall	F1-Score	Support
1.0	0.91	0.67	0.77	15
2.0	0.87	0.89	0.88	73
3.0	0.87	0.95	0.91	94
4.0	1.00	0.67	0.80	18

Accuracy	-	-	0.88	200
Macro Avg	0.91	0.79	0.84	200
Weighted Avg	0.88	0.88	0.88	200

Model Interpretability

A pivotal aspect of our analysis revolved around discerning the influential factors in the models' decision-making processes. Through the extraction of feature importances, we were able to rank the significance of each variable in relation to the predicted performance ratings.
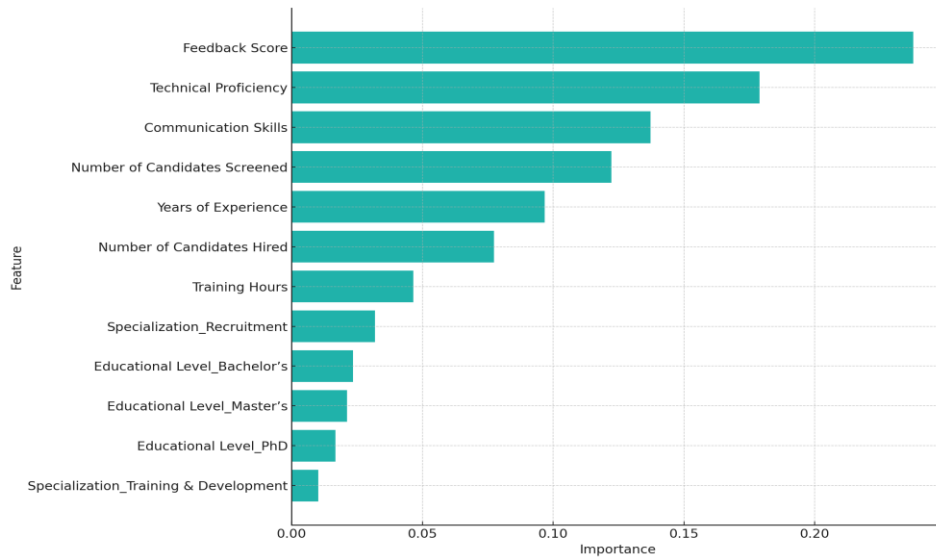
Figure 1. Bar Chart Displaying Feature İmportances for The Gradient Boosting Model.

Validation

The validation curve illustrates the model's performance on both the training and validation datasets as the number of boosting stages (n_estimators) varies. The x-axis represents the number of trees in the Gradient Boosting algorithm, while the y-axis shows the model's accuracy. Two lines are plotted: one for the training dataset (typically shown in blue) and one for the validation dataset (typically shown in green). As the number of trees increases, the accuracy of the model on the training dataset continues to rise, indicating that the model becomes better at fitting the training data. However, the accuracy on the validation dataset plateaus after a certain number of trees, suggesting that adding more trees beyond this point does not significantly improve performance on unseen data. To ensure robustness and gauge the effect of the number of boosting stages (n_estimators) on the Gradient Boosting model's performance, a validation curve was generated. This curve revealed an optimal number of boosting stages, beyond which adding more stages did not yield significant performance improvements.
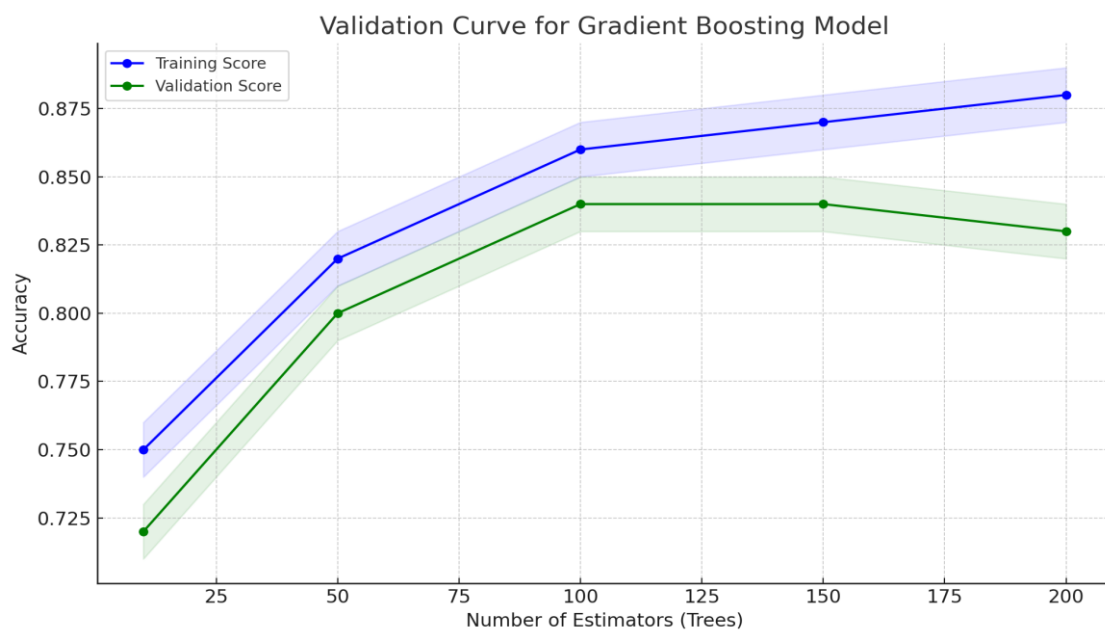
Figure 2. Validation Curve for Gradient Boosting Model

Conclusion

The study, founded on real-world data procured from a security company in Italy, elucidated vital insights into the determinants shaping HR employee performance in the realm of recruitment. By harnessing the power of machine learning models, we achieved a remarkable capability to predict performance ratings with notable accuracy (Cowgill, 2018). This accomplishment not only underscores the potential of data-driven approaches in HR management but also paves the way for forthcoming interventions and bespoke training initiatives.

Practical Implications

The ability to predict HR employee performance with a high degree of accuracy can enable companies to refine their recruitment strategies. By identifying the attributes and skills that significantly influence performance, HR managers can prioritize these factors during the hiring process (De Mauro et al., 2018). The feature importance analysis spotlighted areas such as feedback scores, technical proficiency, and communication skills as pivotal determinants of performance. Organizations can design targeted training programs to bolster these specific areas, ensuring that their HR teams are equipped with the requisite skills to excel.

Given the significance of feedback scores in predicting performance, there's a compelling case for organizations to institutionalize robust feedback mechanisms. Regular peer and subordinate evaluations can provide actionable insights, allowing HR professionals to address areas of improvement proactively (Oswald et al., 2020). The prominence of technical proficiency in the feature importance analysis underscores the need for HR professionals to be adept with the latest tools and platforms.

Organizations should consider periodic workshops and training sessions to familiarize their HR teams with emerging technologies in the recruitment domain.

Effective communication emerged as a crucial factor in determining performance. Organizations might contemplate communication-centric workshops, emphasizing both intra-team dialogues and interactions with potential recruits. Enhancing communication skills can streamline the recruitment process and foster a more collaborative work environment. The success of the machine learning models in predicting performance underscores the value of data-driven decision-making in HR (Raghavan et al., 2020). Companies should contemplate integrating more analytical tools and platforms into their HR workflows, allowing for empirically-informed strategies that can potentially boost overall efficiency and effectiveness.

Given the dynamic nature of the corporate landscape, it's imperative for organizations to continuously monitor and refine their HR strategies. The predictive models, while powerful, should be recalibrated periodically to account for evolving trends and patterns in the recruitment domain.

Managerial Implications

The profound capability of machine learning models to decipher HR employee performance accentuates the necessity for managers to integrate analytical tools into strategic HR decisions. By leveraging such predictive analytics, managers can make informed decisions that align with the organization's overarching recruitment objectives (Shrestha, Krishna & von Krogh, 2021). The salience of feedback scores, technical proficiency, and communication in predicting performance suggests that managers should judiciously allocate resources to fortify these areas. This might encompass budgeting for advanced training programs or investing in state-of-the-art HR technology tools (Hughes, 2023).

Managers should contemplate broadening their evaluation criteria for HR professionals. Beyond traditional metrics, the inclusion of peer and subordinate feedback can offer a holistic view of an employee's performance, fostering a comprehensive performance assessment ethos (Hagendorff, 2020). The pivotal role of feedback underscores the importance of cultivating an organizational culture that values open dialogue and constructive criticism. Managers should champion initiatives that encourage candid feedback, ensuring that it's both given and received in a constructive manner.

Recognizing the attributes that drive HR performance can assist managers in talent retention and development strategies. By understanding the factors that correlate with high performance, managers can craft personalized development plans, fostering both individual growth and organizational excellence (Raghavan et al., 2020). Given the rapidly evolving corporate milieu, managers should remain agile in their recruitment paradigms. The predictive models, while robust, underscore the value of adaptability. Periodic recalibration of strategies, in light of new data and trends, will be paramount for sustained recruitment success. The study's findings suggest the benefit of fostering closer collaboration between HR professionals and other stakeholders, be it technical teams (for proficiency enhancement) or communication trainers (Tambe, Cappelli & Yakubovich, 2019). Managers should facilitate such interdisciplinary collaborations, ensuring that HR teams remain at the forefront of industry best practices.

The subsequent feature importance analysis illuminated the critical areas for HR managers to pivot their attention towards. Feedback scores emerged as a pivotal metric, underscoring the significance of peer and subordinate evaluations in shaping an employee's performance trajectory. Similarly, technical proficiency, an often-underestimated component in the HR domain, was spotlighted as a paramount factor, urging organizations to continually update and upskill their HR teams in line with technological advancements (Mujtaba & Mahapatra, 2019). The analysis further accentuated the indispensable role of effective communication, a skill that bridges the gap between recruitment strategies and their successful execution.

In closing, this research embodies the confluence of data analytics and human resource management. While the predictive models furnish a quantifiable lens to gauge employee performance, the qualitative insights drawn urge organizations to introspect and refine their HR strategies (Nawaz, 2019b). As the corporate landscape continually evolves, anchoring HR decisions in empirical evidence, as demonstrated by this study, will undoubtedly serve as a beacon for fostering organizational growth and employee development.

KAYNAKÇA

Avrahami, D., Pessach, D., Singer, G., & Chalutz Ben-Gal, H. (2022). A human resources analytics and machine-learning examination of turnover: implications for theory and practice. *International Journal of Manpower, 43*(6), 1405-1424. Doi: 10.1108/IJM-12-2020-0548

Bankins, S. (2021). The ethical use of artificial intelligence in human resource management: a decision-making framework. *Ethics and Information Technology, 23*(4), 841-854. Doi:10.1007/s10676-021-09619-6

Bierema, L. L. (2022). "Can You Hear Me Now?" Technical and Human Factors in Virtual Developmental Relationships. *HRD Perspectives on Developmental Relationships: Connecting and Relating at Work*, 241-272. Doi:10.1007/978-3-030-85033-3_11

Bostrom, N., & Yudkowsky, E. (2018). The ethics of artificial intelligence. *Artificial İntelligence Safety and Security,* 57-69. Chapman and Hall/CRC. Doi: 10.1201/9781351251389-4

Buzko, I., Dyachenko, Y., Petrova, M., Nenkov, N., Tuleninova, D., & Koeva, K. (2016). Artificial Intelligence technologies in human resource development. *Computer Modelling and New Technologies, 20*(2), 26-29. Doi: 10.1155/2022/6186811

Cascio, W. F. (2007). The Costs-and Benefits-of Human Resources. *International Review of Industrial and Organizational Psychology 2007*, 71-110. Doi:10.1002/9780470753378

Chowdhury, S., Dey, P., Joel-Edgar, S., Bhattacharya, S., Rodriguez-Espindola, O., Abadie, A., & Truong, L. (2023). Unlocking the value of artificial intelligence in human resource management through AI capability framework. *Human Resource Management Review, 33*(1), 100899. Doi: 10.1016/j.hrmr.2022.100899

Cowgill, B. (2018). Bias and Productivity in Humans and Algorithms: Theory and Evidence from Résumé Screening. Columbia Business School.

Danks, D., & London, A. J. (2017, August). Algorithmic Bias in Autonomous Systems. In *Ijcai* (Vol. 17, No. 2017, pp. 4691-4697). Doi: 10.24963/ijcai.2017/654

De Mauro, A., Greco, M., Grimaldi, M., & Ritala, P. (2018). Human resources for Big Data professions: A systematic classification of job roles and required skill sets. *Information Processing & Management, 54*(5), 807-817. 10.1016/j.ipm.2017.05.004

Dietvorst, B. J., Simmons, J. P., & Massey, C. (2015). *Overcoming Algorithm Aversion: People Will Use Algorithms If They Can (Even Slightly) Modify Them.* SSRN Electronic Journal. Doi:10.2139/ssrn.2616787

Goodman, B., & Flaxman, S. (2017). European Union regulations on algorithmic decision-making and a "right to explanation". *AI magazine, 38*(3), 50-57.

Hagendorff, T. (2020). The ethics of AI ethics: An evaluation of guidelines. Minds and Machines, 30, 99–120. Doi:10.1007/s11023-020-09517-8

Hughes, C. (Ed.). (2023). Valuing People and Technology in the Workplace: Ethical Implications and Imperatives for Success: Ethical Implications and Imperatives for Success. IGI Global.

Jha, S. K., Jha, S., & Gupta, M. K. (2020). *Leveraging artificial intelligence for effective recruitment and selection processes.* In International Conference on Communication, Computing and Electronics Systems (pp. 287-293). Springer, Singapore. Doi:10.1007/978-981-15-2612-1_27

Johnson, B. A., Coggburn, J. D., & Llorens, J. J. (2022). Artificial Intelligence and Public Human Resource Management: Questions for Research and Practice. Public Personnel Management, 51(4), 538-562. Doi: 10.1177/00910260221126498

Köchling, A., & Wehner, M. C. (2020). Discriminated by an algorithm: a systematic review of discrimination and fairness by algorithmic decision-making in the context of HR recruitment and HR Development. Business Research, 13(3), 795-848. Doi: 10.1007/s40685-020-00134-w

Leicht-Deobald, U., Busch, T., Schank, C., Weibel, A., Schafheitle, S., Wildhaber, I., et al. (2019). The challenges of algorithm-based HR decision-making for personal integrity. *Journal of Business Ethics, 160*, 377–392. Doi:10.1007/s10551-019-04204-w

Marr, B. (2019). Artificial intelligence in practice: how 50 successful companies used AI and machine learning to solve problems. John Wiley & Sons.

Mujtaba, D. F., & Mahapatra, N. R. (2019). Ethical considerations in AI-based recruitment. In M. Cunningham & P. Cunningham (Eds.), IEEE International Symposium on Technology in Society, Medford, MA, USA, November 15–16 (pp. 1–7). IEEE. Doi:10.1109/ISTAS48451.2019.8937920.

Nawaz, N. (2019b). Artificial intelligence interchanges human intervention in the recruitment process in Indian Software Industry. International Journal of Advanced Trends in Computer Science and Engineering, 8(4), 1433–1442. Doi:10.2139/ssrn.3521912

Oswald, F. L., Behrend, T. S., Putka, D. J., & Sinar, E. (2020). Big data in industrial-organizational psychology and human resource management: Forward progress for organizational research and practice. *Annual Review of Organizational Psychology and Organizational Behavior, 7*, 505–533. Doi:10.1146/annurev-orgpsych-032117-104553

Pessach, D., Singer, G., Avrahami, D., Ben-Gal, H. C., Shmueli, E., & Ben-Gal, I. (2020). Employees recruitment: A prescriptive analytics approach via machine learning and mathematical programming. Decision Support Systems, 134, 113290. Doi: 10.1016/j.dss.2020.113290

Potnuru, R. K. G., & Sahoo, C. K. (2016). HRD interventions, employee competencies and organizational effectiveness: an empirical study. European Journal of Training and Development. Doi:10.1108/EJTD-02-2016-0008

Rąb-Kettler, K., & Lehnervp, B. (2019). Recruitment in the times of machine learning. Management Systems in Production Engineering, 27(2), 105-109. Doi:10.1515/mspe-2019-0018

Raghavan, M., Barocas, S., Kleinberg, J., & Levy, K. (2020*). Mitigating bias in algorithmic hiring: Evaluating claims and practices.* In Conference on fairness, accountability, and transparency, Barcelona, Spain, January 27–30. New York: Association for Computing Machinery.

Shrestha, Y. R., Krishna, V., & von Krogh, G. (2021). Augmenting organizational decision-making with deep learning algorithms: Principles, promises, and challenges. *Journal of Business Research, 123*, 588-603. Doi:10.1016/j.jbusres.2020.09.068

Tambe, P., Cappelli, P., & Yakubovich, V. (2019). Artificial intelligence in human resources management: Challenges and A path forward. California Management Review. Doi:10.1177/0008125619867910

Varma, A., Dawkins, C., & Chaudhuri, K. (2023). Artificial intelligence and people management: A critical assessment through the ethical lens. *Human Resource Management Review*, *33*(1), 100923. Doi:10.1016/j.hrmr.2022.100923

Vrontis, D., Christofi, M., Pereira, V., Tarba, S., Makrides, A., & Trichina, E. (2022). Artificial intelligence, robotics, advanced technologies and human resource management: a systematic review. *The International Journal of Human Resource Management, 33*(6), 1237-1266. Doi: 10.1080/09585192.2020.1871398

The Role of Working Memory in Second Language (L2) Sentence Processing: A review

Filiz Cele[1]

1.Introduction

In real-time language comprehension, comprehenders simultaneously access and process syntactic, semantic, pragmatic, and discourse-level information to construct coherent interpretations. The integration of these diverse types of verbal information is assumed to be directly linked to cognitive resources, in particular working memory capacity. The concept of working memory (WM), a resource allowing temporary storage and manipulation of information, has been pivotal in first language (L1) processing theories (Frazier, 1978; Baddeley, 2000; Just & Carpenter, 1992; Gibson,1998;). For instance, Just and Carpenter (1992) proposed that WM capacity directly constrains L1processes occurring during comprehension, and that the differences in linguistic WM capacity might significantly contribute to individual variations in language comprehension abilities. Moreover, the assumption that there is a unified, shared resource pool for all verbally mediated tasks, they proposed that syntactic complexity interacts with working memory (WM) span, suggesting that individuals with low WM spans may face greater challenges in processing highly complex sentences compared to those with high WM spans, as complex sentences require more WM resources.

In second language (processing) literature, a long-standing debate centers on whether differences between L1 and L2 processing arise from individual difference in WM capacity. L2 research that examined this question has yielded mixed results. Some studies have suggested that individual differences in WM capacity play a significant role in real-time L2 sentence processing, providing evidence that L2 speakers with high WM capacity exhibit processing patterns similar to those of L1 speakers (e.g., Havik et al., 2009; Dussias & Pinar, 2010; Hopp, 2014; Kim, J. H., & Christianson, K., 2017)). On the other hand, others have proposed that WM does not have a significant effect on L2 sentence processing (e.g., Juffs, 2004, 2005, 2006; Omaki, 2005; Felser & Roberts, 2007). In this chapter, I present a critical review of L2 studies that investigate the influence of WM on L2 sentence processing, with the aim of determining to what extent WM can explain differences in L1 and L2 sentence processing.

In this review, I focus on the factors contributing to variations in findings across L2 research such as types of WM tasks, administration, and scoring. In cognitive science, WM is defined as an abstract and complex concept, which makes the process of measuring it difficult. Furthermore, a variety of WM tasks and methodologies have been put forth. As a result, it has been suggested that the particular WM tasks and methods employed in a study could influence the findings (Juffs, 2011). In this review, I critically examine to what extent the differences in methodology and types of WM tasks can explain the differences in the findings of L2 studies. We hope this review offers a deeper understanding of the effect of individual variations in WM capacity on L2 processing and provide new insights about the relationship between WM constraints and L2 sentence processing. The chapter is organized as follows: Section 2 defines and discusses the concept of working memory (WM) as a cognitive construct and the

[1] Istanbul Aydın University, filizcele@aydin.edu.tr, ORCID: 0000-0002-1290-9217

relationship between WM and L1 sentence processing, followed by Section 3, which provides a brief description of WM tasks used to measure WM capacity. Section 4 presents a comprehensive review of L2 research that has examined the role of WM in L2 sentence processing, and Section 5 offers a discussion and concluding remarks.

2.Working memory and L1 sentence processing

Working memory is defined as "the system or systems that are assumed to be necessary to keep things in mind while performing complex tasks such as reasoning, comprehension and learning" (Baddeley, 2000. p.36). One of the most prominent models in this field is Baddeley and Hitch's (1974) multi-component model, which presents a comprehensive framework. This model expands upon the earlier concept of short-term memory (STM) and introduces the concept of "slave systems." These "slave systems" encompass the phonological loop, responsible for storing and rehearsing verbal information, and the visuospatial sketchpad, designed for managing visuospatial data. These "slave systems" are dependent on a limited-capacity attentional system known as the central-executive component, which handles tasks such as allocating attention, planning, inhibiting irrelevant responses, and coordinating resources required for concurrent activities. In a later development, Baddeley (2000) introduced a fourth component within the working memory system, known as the episodic buffer. This component is designed to store and integrate information from diverse sources into meaningful chunks or episodes. According to the multi-component model, WM stores (non)verbal, and visual information in mind while performing complex tasks such as reasoning, learning and comprehension. Figure 1 below illustrates the multicomponent model of WM
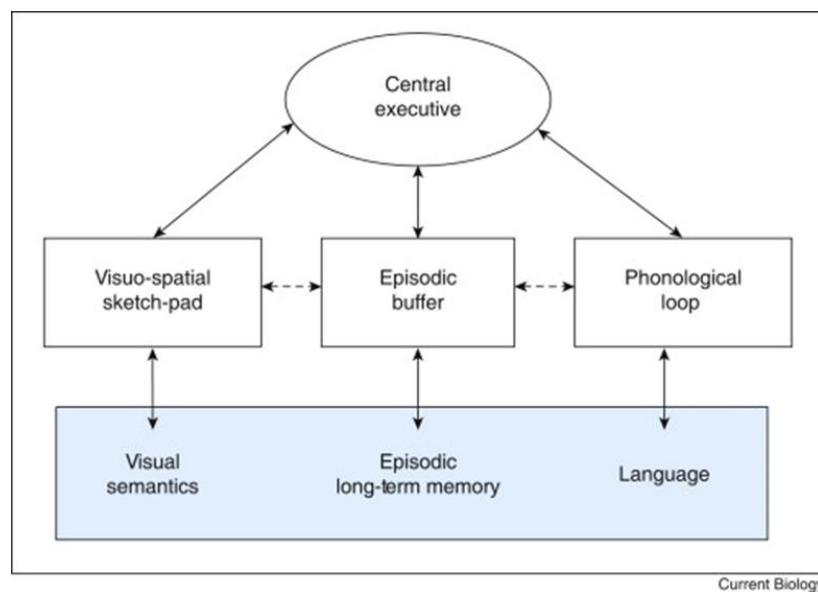
"Figure 1. A later development of the multicomponent model". (Baddeley, 2000, p.38)

In L1 sentence processing, some studies have examined whether differences in WM capacity affect real-time processing of structurally or semantically complex sentences such as such as relative clauses or main verb/reduced relative clause. For example, MacDonald et al., (1992) found that high-span individuals spent shorter RTs on the processing of pragmatic information, but longer RTs on the processing of syntactically ambiguous sentences based on the findings from a study on the resolution of temporarily ambiguous sentences involving a main verb and a reduced relative clause interpretation. Others investigated whether WM affects integration of wh-fillers with their gaps. Gibson (1998) proposed that the distance between wh-filler and the gap affects the integration of the filler with the gap. Studies that examined the effect of WM on the resolution of relative clause attachment ambiguity reported that participants prefer

to attach the relative pronoun to the high noun phrase due to memory constraints (Gibson et al. 1996).

To measure the multi-component WM capacity (span), various complex span tasks have been proposed in the field of cognitive science. Next section addresses WM tasks.

3.Working memory tasks

Among multi-component WM tasks, a widely used complex span task is the Reading Span Task (RST) prepared by Danemen and Carpenter (1980). The RST requires participants to perform two tasks at the same time: reading and comprehending sentences and recalling the last word of each sentence. Sentences are presented individually in sets ranging from two to six sentences. At the end of each set the participants is asked to recall as many words as possible. The number of recalled words refers to their WM span. It has been shown that span measures can predict performance on various cognitive tasks, including learning programming skills and intelligence testing tasks.

In addition to the traditional reading span task, three novel working memory span tasks—namely, operation span, symmetry span, and rotation span—have emerged. These tasks aim to provide a more comprehensive assessment of working memory capacity, which is known to be an abstract construct, making it challenging to measure accurately. In pervious research, it has been argued that no single task can perfectly assess the abstract construct it aims to represent (Conway et al., 2005). For instance, the Operation Span task, while assessing WM capacity, may also inadvertently assess mathematical aptitude, motivation, and vocabulary knowledge, among other factors (e.g., Turner & Engle, 1986) as ilustrated in Figure 2.
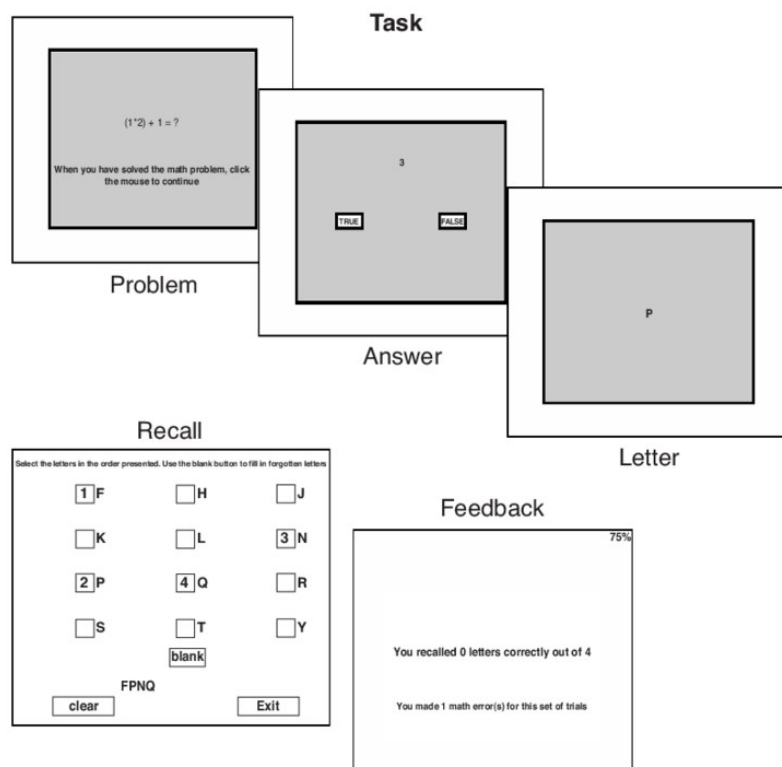

Figure 2. Illustration of the automated operation span task

Unsworth et al. (2005) described the steps in the automated operation span task in Figure 2 as follows: "first a math operation is presented. After it is solved, participants click the mouse and a digit is presented, which is to be judged as either correct or incorrect as answer to that math operation. This is followed by a letter for 800 msec. These steps are repeated for a certain

number of times until the recall session begins. For recall, participants are asked to remember and click on the letters they saw in the exact order of their individual appearance on the screen. After recall, feedback is presented for 2.000 msec."(Unsworth et al., 2005, p.500). Likewise, the Reading Span Task (RS) requires participants to assess sentences while also retaining a letter for subsequent recall, as opposed to performing mathematical operations. Although designed to assess WM capacity, the RS inherently tests verbal proficiency. consequently, while these WM span tasks exhibit reliability and validity, they are not entirely free from influences of other cognitive domains. As a result, the authors states that a recommended approach in research is to employ multiple WM span tasks and compute a latent variable based on the average scores from all tasks, yielding a holistic measure of WM capacity.

4.Working Memory and L2 sentence processing

In L2 sentence processing, a considerable number of researchers have examined the role of working memory (WM) on L2 sentence processing to explain differences between L1 and L2 processing. They aimed to determine whether these differences arise from constraints on WM resources rather than fundamental differences in the representation and manipulation of grammatical knowledge. They primarily examined the role of WM capacity in processing ambiguous structures like relative clause attachment ambiguity, subject-object ambiguities, or wh-dependencies. The findings vary. Some studies found no evidence of WM affecting L2 processing (e.g., Omaki, 2005; Felser & Roberts 2007; Juffs, 2004; 2005; 2006), while others reported that WM affects L2 sentence processing (e.g., Havik et al. 2009; Dussias & Pinar, 2010; Hopp, 2014; Kim, J. H., & Christianson, K., 2017).

Juffs (2004, 2005, & 2006) conducted a series of experiments to investigate whether working memory (WM) could explain variations in reading speed for grammatical structures with high processing demands. The findings did not provide evidence for the influence of WM capacity on L2 processing. For example, in his initial study (Juffs, 2004), he focused on the influence of WM resources in processing garden path sentences, which often result in differences in reading times (RTs). An example of such a sentence is: "After the children cleaned the house looked very neat and tidy," (p.209), where the disambiguating verb (i.e., "looked") plays a critical role in correcting the initial misinterpretation of the main clause. Juffs assessed the WM capacity of L1 Chinese, Japanese, and Spanish learners of L2 English by utilizing reading span and word span tests in both their native language (L1) and the target language (L2). The L2 reading span test was adapted from Daneman and Carpenter's (1980) test for L2 learners, as modified by Harrington and Sawyer (1992). For L1 reading span assessments, they employed a Japanese reading span test developed by Osaka and Osaka (1992) and designed in-house tests tailored for Chinese and Spanish learners. The results revealed no significant correlation between L2 learners' WM scores and their RTs in the disambiguating region (main verb). Additionally, further analysis showed no significant differences in RTs on the disambiguating verb between high-span and low-span L2 learners.

In another study, Juffs (2005) examined the effect of WM on the processing of long-distance wh-extractions such as 'Who does the nurse know __ SAW the doctor in the office?' testing L1 Japanese, Chinese and Spanish learners of L2 English in a self-paced word-by-word reading test and two WM tasks: reading span and word span tasks in both their L1 and L2. The results suggested that individual variation in RTs observed in self-faced readings task was not affected by the participants' WM measures in either the L1 or L2. Juffs attributed these findings to the use of the absolute span method and manual administration of span tasks in both L1 and L2,

which may have contributed to the lack of significant relationships within groups. This could be due to the limited range of scores available for analysis.

However, in a study which reexamined the effect of WM on the use of plausibility information to recover from a misanalysis in the processing of long distance wh-questions. Dussias and Pinar (2010) found that only L2 speakers with high span performed similarly to native English speakers in using plausibility information. They tested L1 Chinese-L2 English speakers and native English speakers on a self-paced reading task involving long-distance wh-questions used in the studies of Juffs and Harrington (1995) and Juffs (2005). but also manipulated plausibility. Dussias & Pinar utilized a computerized reading span (RS) test adapted from Waters et al.'s (1987) and Water and Caplan's (1996) RS task. In this RS test, participants were required to quickly judge complex sentences for the plausibility of complex sentences and remember the final word of each sentence for later recall. Dussias and Pinar highlighted that the RS test effectively evaluates participants' processing of syntactically and semantically complex sentences, necessitating a comprehensive analysis of sentence structure and meaning for accurate judgments. It's likely that individuals with limited cognitive abilities may struggle when under time pressure. Furthermore, the test provides insights into participants' working memory, as they must allocate mental resources to temporarily storing words for the recall task.

Their research demonstrated that high-span L2 English learners resembled native English speakers in facing more difficulties with subject-extractions than object-extractions. This was evident through longer reading times (RTs) in the critical three-word region. Additionally, when examining word-by-word reading times within each extraction condition, subject-extractions exhibited longer RTs in the region right after the main verb, unlike object-extraction sentences. These results suggest that a reanalysis process occurs specifically at the disambiguating word (following the main verb), with subject extractions presenting greater reanalysis difficulties compared to object extractions. More importantly, they found that in sentences with subject extractions, which were more difficult to process, both the native English speakers and high-span L2 speakers exhibited longer RTs when the wh-word served as a plausible filler for the (incorrect) gap position. This suggests that participants relied on plausibility information to correct their initial misinterpretation, highlighting the greater difficulty in discarding a plausible reading compared to an implausible one. Low-span L2 speakers, however, were insensitive to both subject-object asymmetry and plausibility information. In sum, Dussias & Pinar suggested that individual differences in processing have a significant effect on real-time L2 sentence processing and asserted that differences between L1 and L2 processing can be attributed to insufficient cognitive resources.

Likewise, Hopp (2014) found a significant effect of WM resources on L2 learners' relative clause attachment preference. Hopp tested L1 German-L2 English learners and L1 English speakers on an offline judgement experiment and an eye-tracking reading experiment along with a reading span task created by Ariji, Omaki and Tatsuta (2003) to examine the influence of WM resources on L2 speakers' RC attachment preference. The RS task in which participants were asked to judge each sentence and remember one word given in capitals in each sentence for later recall was in L2 English. Hopp hypothesized that If L2 processing shares the same underlying structure as L1 processing, then late L2 learners' comprehension of relative-clause attachment ambiguities should also be influenced by working-memory limitations in both offline and online tasks. Given that offline tasks lack time constraints, L2 speakers were anticipated to exhibit similar patterns in reading span as native speakers. Specifically, there should be a negative correlation between reading span and high attachment, as low-span readers tend to use a chunking strategy. In online reading, both L1 and L2 speakers were expected to

show a positive correlation between reading span and high attachment, which facilitates memory demands during relative clause attachment preference. The results confirmed these assumptions and indicated that L2 learners exhibited strong relative-clause attachment preferences similar to those of native speakers in both their judgments and processing. These preferences were influenced by individual variations in working memory capacity and lexical automaticity. Hopp attributed these findings to the working memory task and the eye-tracking technique employed for data collection.

Another study conducted by Kim, J. H., & Christianson, K. (2017) examined whether WM affects relative clause (RC) attachment preference of L1 Korean/L2 English in their L1 and L2 using two self-paced reading tasks and a reading span task. They found that WM influenced the processing of globally ambiguous RCs in their L1 and L2, aligning with the expectations outlined in the Capacity Constrained Parsing (MacDonald et al., 1992). Their conclusion is that, among advanced L2 learners, the strategies used for processing ambiguous structures do not fundamentally vary within an individual's L1 and L2. Instead, these strategies diverge depending on the working memory capacities of the readers. In summary, the findings from the reviewed L2 studies suggest that early L2 studies, which showed no effect of working memory (WM) on L2 processing, differ from recent studies in terms of WM tasks and the methodology used for applying and scoring these tasks. The next section will provide a discussion of these issues.

5. Discussion and conclusion

In this chapter, I have reviewed L2 research that examined the impact of individual differences in working memory (WM) on L2 sentence processing. Our objective is to determine whether variations in WM can account for differences in L1 and L2 processing. The L2 studies discussed above appear to present mixed findings concerning the effect of WM. Early studies suggest that WM does not constrain L2 processing, while recent studies provide evidence in favor of WM constraints on L2 processing. There may be multiple factors that could explain these mixed findings; however, we will focus on differences in the WM tasks, their administration, and the scoring methods used in these studies.

The pioneering studies that explored working memory (WM) constraints on L2 sentence processing, as reviewed above, were carried out by Juffs (2004; 2005; 2006). Juffs assessed the WM capacity of L1 Chinese, Japanese, and Spanish learners of L2 English using reading span and word span tests in both their native language (L1) and the target language (L2). For the reading span task, he employed an adaptation of Daneman and Carpenter's (1980) test, as modified by Harrington and Sawyer (1992). The test was administered to participants in a pen-and-paper format. Additionally, Juffs employed in-house tests tailored for Chinese and Spanish learners, potentially impacting the validity and reliability of these assessments. In a review paper, Juffs (2011) mentioned that "the use of the absolute span method and manual administration of span tasks in both L1 and L2, which may have contributed to the lack of significant relationships within groups. This could be due to the limited range of scores available for analysis" (p.149).

Similarly, Felser and Roberts (2007) investigated whether L2 processing demonstrates the integration of filler-gap dependencies in the same manner as L1 processing and the extent to which working memory (WM) impacts the integration of wh-fillers with their gaps. They conducted experiments on L1 Greek learners of L2 English, focusing on cross-modal priming tests involving long-distance wh-dependencies. To assess the participants' working memory capacity, they employed the same reading span test used in Juffs (2004; 2005). The results revealed no significant effect of working memory on the L2 processing of long-distance wh-dependencies in English. These findings may, in part, be attributed to the characteristics of the working memory task and its methodology.

On the contrary, Dussias and Pinar (2010), who conducted a study involving L1 Chinese-L2 English speakers and native English speakers using a self-paced reading task with long-distance wh-questions similar to those in the studies by Juffs & Harrington (1995) and Juffs (2005), discovered that working memory (WM) does influence the processing of long-distance wh-dependencies in English for L2 speakers. Unlike Juffs, Dussias and Pinar incorporated plausibility information into the experimental items and employed a computerized reading span (RS) test adapted from Waters et al.'s (1987) and Water and Caplan's (1996) RS task. In this RS test, participants were required to promptly evaluate complex sentences for their plausibility and also remember the final word of each sentence for later recall. This underscores the influence of the type of WM task and the way it is administered and scored on the outcomes of a study.

In the same vein, Hopp (2014), who conducted research involving L1 German-L2 English learners and L1 English speakers, utilized both an offline judgment experiment and an eye-tracking reading experiment, in addition to a reading span task created by Ariji, Omaki, and Tatsuta (2003). Hopp's findings indicated a significant impact of working memory (WM) on the processing of relative clause attachment ambiguity for L2 speakers. Hopp suggests several considerations for future studies investigating the influence of individual differences in WM capacity on L2 processing: "(1) Increase sample sizes to enhance statistical power when examining effects related to working memory and lexical processing. (2) Collect data to assess and control the influence of individual differences in working memory and lexical automaticity. (3) Incorporate various measures of processing capacity at different levels when assessing capacity-related differences in L2 processing, as demonstrated in the current study" (p.273).

Another study that found a significant effect of WM on L2 processing is Kim & Christianson's (2107) who examined L1 Korean learners of L2 English on both their L1 and L2 processing of globally ambiguous relative clauses. The authors used two self-paced reading tasks and a WM task to measure participants' WM capacity. The reading span task was an adapted form of Conway et al.'s (2005) in Korean. In this task, the participants read each sentence, assessed its semantic coherence, and simultaneously recited and committed a randomly assigned letter from the sentence's conclusion to memory. At the completion of each set, participants were directed to record all the letters from that set in the sequence they had appeared.

In summary, summary, the findings from L2 studies underscore the significance of the types of WM tasks, their administration methods, and the scoring procedures on research outcomes. Based on these results, it becomes evident that the selection, application, and scoring of WM tasks are pivotal factors influencing study findings. Additionally, recent studies have revealed a strong correlation between individual differences in working memory (WM) resources and L2 sentence processing. These findings suggest that the dissimilarities observed in L1 and L2 processing can be attributed to WM constraints, which challenges the predictions of the Shallow Structure Hypothesis (Clahsen & Felser, 2006; 2018). This hypothesis suggests that L1 and L2 processing differ because L2 speakers may not maintain and manipulate syntactic information in the same manner as L1 speakers during real-time sentence processing. Instead, they may rely on lexical, semantic, or other surface-level information. To conclude, it is essential for future research to address some factors such as the types of WM tasks, their administration methods, and the scoring procedures when conducting investigations in this domain.

References

Ariji, K. et al. (2003). Working memory restricts the use of semantic information in

ambiguity resolution. In Peter Slezak (ed.), *Proceedings of the 4th International Conference on Cognitive Science*, 19–25. Sydney, Australia: University of New South Wales.

Baddeley, A. D., & Hitch, G. J. (1974). Working memory. In G.A. Bower (Ed.), The psychology of learning and motivation, Vol. 8, 47-90 *Advances in research and theory*. San Diego, CA: Academic Press.

Baddeley, A. D. (2000). The episodic buffer: A new component of working memory?

Trends in Cognitive Sciences, 4, 417–423.

Baddeley A. (2010). Working memory. *Current Biology,* 20 , 4. R136–

Clahsen, H. & Felser. C. (2006a). Grammatical processing in language learners. *Applied*

Psycholinguistics, 27(1), 3-42

Clahsen, H. & Felser. C. (2018). Some notes on the Shallow Structure Hypothesis. Studies in

Second Language Acquisition, 40(3), 693-706

Conway, A. et al, (2005) Working memory span tasks: A methodological review and user's

guide. Psychonomic Bulletin and Review 12: 769–86

Dussias, P. & Pinar, P. (2010). Effects of reading span and plausibility in the reanalysis of

wh-gaps by Chinese English second language speakers. *Second Language Research* 26. 443–472

Daneman, M. & Carpenter, P. (1980). Individual differences in working memory and reading.

Journal of Verbal Learning and Verbal Behavior 19. 450–466

Felser, C. et al. (2003). Children's processing of ambiguous sentences: A study of relative

clause attachment. *Language Acquisition* 3. 127–163

Felser, C. & Roberts, L. (2007). Processing wh-dependencies in a second language: A cross-

modal priming study. *Second Language Research* 23. 9–36.

Frazier, L. (1978). On comprehending sentences: Syntactic parsing strategies. Storrs, CT:

University of Connecticut, Storrs, dissertation.

Gibson, E., et al. (1996). Cross-linguistic attachment preferences: Evidence from English

and Spanish. *Cognition* 59. 23–59

Gibson, E. (1998). Linguistic complexity: Locality of syntactic dependencies. Cognition 68.

1–76

Harrington, M. W. & M. Sawyer (1992). L2 working memory capacity and L2 reading skills.

Studies in Second Language Acquisition 14.1, 25–38.

Havik, E. et al (2009). Processing subject–object ambiguities in the L2: A self-paced reading

study with German L2 learners of Dutch. *Language Learning* 59. 73–112

Hopp H. (2014). Working memory effects in the L2 processing of ambiguous relative

clauses. *Language Acquisition*. 21:250–78

Juffs, A. (2004) Representation, processing and working memory in a second language.

Transactions of the Philological Society 102: 199–226.

Juffs, A. (2005) The influence of the first language on the processing of wh-movement in

English as a second language. *Second Language Research* 21: 121–51.

Juffs, A. & Harrington, M. (1995) Parsing effects in second language sentence processing:

Subject and object asymmetries in wh-extractions. *Studies in Second Language Acquisition* 17: 483–516.

Juffs, A. & Harrington, M. (1996) Garden path sentences and error data in second language

sentence processing. *Language Learning* 46: 283–326

Just, M. A. & Carpenter, P.A. (1992). A capacity theory of comprehension: Individual

differences in working memory. *Psychological Review* 99. 122–149.

Kim, J. H., & Christianson, K. (2017). Working memory effects on L1 and L2 processing of

ambiguous relative clauses by Korean L2 learners of English. *Second Language Research*, 33(3), 365–388. https://www.jstor.org/stable/26375890

Omaki, A. (2005). Working memory and relative clause attachment in first and second

language processing. Honolulu, HI: University of Hawai'i, Honolulu, unpublished master's dissertation.

MacDonald MC, Just MA, & Carpenter P.A. (1992) Working memory constraints on the

processing of syntactic ambiguity. *Cognitive Psychology* 24: 56–98.

Roberts, Leah. (2012). Individual differences in second language sentence processing.

Language Learning 62. 162–188

Turner, M. L., & Engle, R. W. (1989). Is working memory capacity task dependent?

Journal of Memory and Language, 28, 127–154.

Unsworth, N., Heitz, R. P., Schrock, J. C., & Engle, R. W. (2005). An automated version

of the operation span task. *Behavior Research Methods*, 37, 498-505.Waters, G.S. & Caplan, D. (1996) The measurement of verbal working memory capacity and

its relation to reading comprehension. Quarterly Journal of Experimental Psychology: Human Experimental Psychology 49: 51–79.

Waters, G.S., Caplan D, & Hildebrandt, N. (1987) Working memory and written sentence com prehension. In: Coltheart M (ed.) Attention and performance 12: *The psychology of reading.* Hillsdale, NJ: Lawrence Erlbaum, 531–55

Social Policy, Sustainable Tourism, and the World Bank

Özlem KÜÇÜK[1]

Introduction

The World Bank (the Bank) is an international social policy actor on the governance of poverty, a complex and unsolvable problem of the market economy. Thus, in order to reduce poverty in developing countries, it provides loans, technical assistance and information to countries to return the poor to the labor market or to enable them to stay. The Bank provides loans to countries for conditional cash transfers, direct income support, microcredits, and housing projects to protect the poorest and most vulnerable groups against social risks (Küçük, 2023).

The Bank has played an important role in the diffusion of the notion of social investment since the mid-1990s. The bank focused on grappling with the cycle of poverty and emphasized social investment for vulnerable people in the South. In addition, the Bank focuses on promoting conditional cash transfers for low-income families to provide basic social programs (World Bank, 2018).

The World Bank's social policy approach includes social development, social investment and social protection. Social development projects supported by the World Bank aim to develop local capacity and empower indigenous with the link to sustainable tourism. The World Bank's Environment Department has applied a long-term National Tourism Plan to provide environmental protection standards for sustainable tourism in Latin America, especially Mexico (Ortiz ve Solo, 2009).

Sustainable tourism in the World Bank agenda has been accepted as a tools of social development, based on the 2000s. According to statistical data from the World Economic Forum (2023), tourism employs one in every five jobs and accounts for more than 10% of the Global Gross Domestic product (GDP). Developing sustainable tourism as the key driver to economic growth, job creation, and social diversification should aim of the Gulf Cooperation Council, Latin America, and the Caribbean Island countries for the view of the World Bank (World Economic Forum, 2023; World Bank, 2020a).

According to the Bank, tourism contributes economic value of wildlife by increasing the importance of biodiversity. For example, before the Covid-19 outbreak, Gorilla tourism in Uganda reached approximately 34.3 million US dollars. Sustainable tourism is a powerful driver in the protection and revive of cultural heritage in the world, of which approximately 814 are held in the UNESCO World Heritage (Twining-Ward, Messerli, Sharma, Villascusa ve Jose, 2018).

Today, the World Bank elaborates on global tourism in every aspect. In the research report Tourism and Sharing Economy (2018), which it examined the advantages and challenges of digital platform developments in the field of tourism, it explained the measures that should be taken to ensure that the developments in this field are sustainable. The Tourism and Sharing Economy (2018) research report examined the advantages and challenges of digital platform developments in the field of tourism, it explained the measures that ensure that the

[1] Öğr.Gör.Dr, Kocaeli Üniversitesi Turizm Fakültesi, ozlem.kucuk@kocaeli.edu.tr, https://orcid.org/0000-0002-7717-2439

developments in this field are sustainable. The bank has recommended government intervention and standardization as a priority to ensure the sustainability of P2P accommodation, one of the digital technologies in the field of tourism. Following the Bank's report, Germany prepared a tax guide for Airbnb, one of the P2P accommodation platforms, in 2018 (Busch, 2019; Küçük, 2022).

Thus, the Bank's Tourism and Sharing Economy report seems to have spurred the German government into action. While the World Bank is generally best known as a financial catalyst, it is a crucial knowledge-sharing institution. The World Bank presents crucial innovation issues through annual development, business reports, and other research reports. The Bank is the way of access to information. The bank's power comes not from the support of Western countries; mainly from the processes and strategies related to the production of "knowledge", from the reports, research, and projects it publishes as a "knowledge institution", from the millions of data it collects, from its power to use these data within certain policies and strategies, from countless research centers, research institutes, universities, countless experts, It derives from the academician's capacity to establish and direct information networks that include researchers (St.Clair, 2006).

Social policy, which initially regulated the relationship between employees and employers and safeguarded them when they were unable to work, later gained a new dimension of social needs by spreading to all areas of life. The Bank's pioneer aim is to reduce poverty and to submit innovative knowledge and solutions to countries for solving problems (Moser, 2018).

The Bank is an important international social policy actor, both because of its pioneering role in development finance and its influence in regulating the flow of foreign investments, as well as its research, reports, and technical assistance containing innovative information and solutions in reducing poverty. Since 2016, the Bank has increasingly emphasized the positive impact and importance of the sustainable tourism sector on business, employment, and poverty (Khemani, 2016).

The research was conducted through a comprehensive content analysis of World Bank studies and country reports. Innovative knowledge and solutions in the field of social policy in the global sustainable tourism sector have contributed significantly to global employment and income through the creation of the World Bank. The main target of the study has been to identify sustainable tourism solutions viewed by the World Bank

1. A New Perspective from the Mass Tourism of Modern Society to the Sustainable Tourism of the Knowledge Society

Mankind has been traveling for various reasons from ancient times to the present. Our ancestors traveled to unknown places because difficulties of finding and processing of food and their heavily conditions of lives and fear of being killed. Religion was the very important reason for traveling in the medieval period. The most well-known Crusade, on the other hand, was structured to liberate Jerusalem from Islamic rule. The Silk Road, where Chinese silk, ceramics, and rich spices met with the West, found more meaning in the book "Marco Polo's Travels" written after the Venetian Marco Polo's travels. On the other hand, the history of travels based on sports activities goes back to ancient Greece (Madden, Dickson ve Marshall, 2023).

There are many reasons why people travel: health, sports, religion, education, entertainment, curiosity, self-development, exploration new cultures, and trade are the main reasons. Today, the tourism industry includes accommodation services (hotels, motels, resorts, digital home-based platforms, etc.), transportation services (road, airline, sea, and rail), and marketing activities (travel agencies, tour operators). Other contributing activities are food and beverage activities (restaurant, cafeteria, and bar), retail stores (souvenirs and art stores), non-

profit organizations, and various activities such as recreation and animation. The spread of scientific and technological knowledge has led to the expansion of global tourism through digital platforms and the discovery of every place with touristic value (Göde ve Ekergil, 2020).

The British Thomas Cook travel company's organization of a group of 750 people traveling for an event in 1841 is considered the beginning of the first modern mass touristic travel. After the industrial revolution, the change in methods and techniques in production, the changing phenomenon of tourism and the increase in income and education levels, the development of transportation and infrastructure, the right to paid holidays, and incentives for tourism have led to mass tourism (Duran ve Özkul, 2018).

Achievement of peace in the post-second World War and advances in transportation and information technologies have made tourism the third largest industry in the world before the Covid-19 pandemic. Moreover, about 10% of global employment was provided by the tourism industry. The Covid-19 crisis has deeply devastated global tourism due to lockdowns, travel restrictions, and exaggerated news. Even though international arrivals increased by 20% in the three quarters of 2021 compared to 2020, they were 76% below the pre-Covid-19 level. According to the results of the research conducted by the non-governmental organization Avaaz, Facebook, the world's largest social network with more than 2 billion monthly users, has been claimed to pose a danger to public health. Although travel restrictions were reduced in 2021 after vaccination, global tourism has not reached its pre-pandemic economic size. Recurring pestilences in history have resulted in new beginnings (Avaaz, 2020; World Economic Forum, 2021).

During the black plague, traders better understood the importance of freedom of travel. With a demand diminishing in their urban, English, Dutch, and Spanish merchants sailed far to sell their wool, wine, and cheese. This situation led to the development of international trade relations and discoveries. The most shocking results of the Covid-19 crisis were in the tourism sector. This period has seen individualization of tourism while increasing camper vans and home-based accommodation increased, and mass tourism rates decreased (UNESCO, 2023).

People living in Venice, Italy, one of the leading tourism centers in Europe and the world held a protest against the great number of visitors and the pollution of huge cruises. Inhabitants in Venice raised against the pollution and difficulty of life in the city which hosted about 20 million visitors per year with huge cruise ships, docking at the port. Many parts of Europe (such as Italy, Spain, Croatia, and France), were frustrated with mass tourism. Finally, protests against the intensity of tourism and private industry activities which occurred environmental pollution in Italy led to the establishment of new regulations on the constitution. According to scientists, in the 21st century, we should pay more attention to nature and the environment than before. There are debates on the point concerning zoning and construction in Turkey should be sustainable towards the environment and nature. After the Covid-19 vaccines, the building harbor in Göcek of Turkey, which has a good tourist route, is a matter of discussion. All concerns are related to the environmental pollution that threatens tourism destinations and the decline in the quality of life of indigenous. Both pestilence and global pollution increase the demand for new tourist destinations and adventures (BBC,2020; Ardahanlıoğlu, Bulut ve Cinar, 2022).

Mass tourism for tourism destinations figures out unbridled tourism. Tourism destinations that receive tourists above their environment carrying capacity lose their natural beauty, value, and importance. Sustainable tourism includes the preservation and revival of art, literature, traditions, culture, natural beauties, cultural heritage, and value systems that integrate the social environment together with the natural environment in which a society lives. Sustainable tourism and sustainable development also offer new alternatives in the field of tourism in post-modern society to prevent environmental resource loss (World Bank, 1999).

1.Social Development and Sustainable Tourism

According to the Bank, social development should be community-centered, in line with the principles of good governance, transparent and accountable. The World Bank argues that after a destination that has discovered social development begins to receive tourists, public intervention is necessary to attract large investments to the region and to include the people in the region in the workforce, thus creating sustainable tourism. Lack of public investments and overuse of resources are one of the biggest risks for sustainable tourism. The key to sustainable development is for a tourist-receiving country to maintain its tourism activities by preserving its high biodiversity (World Bank, 2019).

For the Bank, sustainable tourism boosts international investment, generates jobs, strengthens rural communities, empowers artisans, and promotes inclusive development. Tourism creates employment and reduces poverty, thus benefiting by reaching a large number of people. According to the bank, as the potential for nature-based tourism increases, many tourism resorts use organic agriculture, and sustainable fisheries, introducing wind and solar energy. Thus, climate change awareness needs to be raised to protect marine biodiversity, coral reefs, beaches, and waters, such as ocean-based tourism (World Bank, 2017).

2.Social Protection and Sustainable Tourism

The Bank says that governments should take quick action to protect nature-based tourism, especially after the Covid-19 outbreak. For there to be a recovery in the tourism sector, which experienced significant job losses after the pandemic, tourism destinations must be diversified and some social protection measures must be taken (World Bank, 2020b).

The bank launched a project in 2004 for approximately 3 million Indonesian women migrant workers, of whom around 90% were working in the informal sector at the beginning of the 2000s. The name of the project carried out between 2004 and 2010 was "Social protection for women migrant workers: a comparative study among sending countries".At the end of the project, the Bank helped the Indonesian government pass a law to protect informal Indonesian migrant workers (World Bank, 2004).

Another World Bank report on this subject was published under the name Social Protection for Temporary Migrant Workers: Conceptual Framework, Country Inventory, Assessment and Guidance. After research on the employment of informal migrant workers and the situation of their families, which is intensely carried out in OECD and Gulf countries, the social protection measures that should be taken to prevent migrant workers from posing a social risk are listed (World Bank, 2010).

Conclusion and Recommendations

The World Bank is a legitimate and respected supranational financial institution that advises global social problems and proposes development-oriented social policies. Sustainable tourism was on the Bank's agenda in 2016 because before the Covid-19 closures, global tourism was the third global export industry, employed one in five people, and constituted a significant part of global income. The bank says that sustainable tourism will reduce poverty by creating employment. Therefore, the Bank is in favor of government intervention to protect cultural heritage and develop nature-based tourism. For sustainable tourism, an approach centered on social investment, social protection and social development is required. The Bank argues that some measures should be taken to eliminate the grievances of informal migrant workers and their families, which are common in tourism. The bank has carried out some projects for informal immigrant women workers. In addition, the Bank wants legal regulations to be made

to solve the problems of informal migrant work and for non-governmental institutions to be effective in these decisions.

References

Ardahanlıoğlu, Z. R. , Bulut, Y. & Cinar, İ. (2022). Fethiye-Göcek Özel Çevre Koruma Bölgesi Bazı Doğal Ortam Özelliklerinin Coğrafi Bilgi Sitemleri ile Tespiti. Türkiye Peyzaj Araştırmaları Dergisi , 5 (1) , 1-10 . DOI: 10.51552/peyad.1039753

Avaaz (2020). How Facebook can Flatten the Curve of the Coronavirus Infodemic. https://secure.avaaz.org/campaign/en/facebook_coronavirus_misinformation/

BBC (2020). Stopping Venice choking on its own pollution. https://www.bbc.com/news/business-51364082

Busch, C. (2019). Regulating Airbnb in Germany – Status Quo and Future Trends. Journal of European Consumer and Market Law 39-41. Available at SSRN: https://ssrn.com/abstract=3730641

Duran, E ve Özkul, E.(2018). Değişen Dünya Turizminde Yeni Alternatifler. Türkiye Turizm Coğrafyası kitabında, Yayıncı: Paradigma Akademi

Göde, M.E. ve Ekergil, V. (2020). Designing an Activity-Based Costing Method for Food and Beverage Businesses: A Determination of Activities. Travel and Tourism: Sustainability, Economics, and Management Issues. https://link.springer.com/chapter/10.1007/978-981-10-7068-6_6

Khemani, S. (2014). Chapter 7 Implications for policy actors. The World Bank Document.

Küçük, Ö. (2022). Dünya Bankası Ve Sürdürülebilir Kalkınma: Dijital Platformlar Ve Sürdürülebilir Turizm . Uluslararası Beşeri Bilimler ve Eğitim Dergisi , 8 (17) , 120-152 . Retrieved from https://dergipark.org.tr/tr/pub/ijhe/issue/69713/1065485

Küçük, Ö. (2023). Dünya Bankası, Sosyal Risk Yönetimi ve Yönetişim . Kamu Yönetimi ve Politikaları Dergisi, 4 (1) , 11-46 . DOI: 10.58658/kaypod.1239447

Madden, T. F. , Dickson, Gary and Baldwin, Marshall W. (2023, August 13). *Crusades*. *Encyclopedia Britannica*. https://www.britannica.com/event/Crusades Moser,Caroline O.(2018). *Urban social policy and poverty reduction English).* Transportation, Water and Urban Development discussion paper series,no. 10. Urban Development Division Washington, D.C. : World Bank Group. http://documents.worldbank.org/curated/en/811661468914503802/Urban-social-policy-and-poverty-reduction

Ortiz, D. ve Solo, T.M. (2009). Responsıble And Sustaınable Tourısm – Lessons From Latın Amerıca And The Carıbbean. Number: 52042, The World Bank Publication.

St. Clair, A. L. (2006). The World Bank as a Transnational Expertised Institution. *Global Governance*, *12*(1), 77–95. http://www.jstor.org/stable/27800599

World Bank (2018) *World Development Report: The Changing Nature of Work* (Working Draft). Washington, DC: The World Bank.

"Twining-Ward, Louise; Messerli, Hannah; Sharma, Amit; Villascusa Cerezo, Jose Miguel. 2018. Tourism Theory of Change. Tourism for Development Knowledge Series;. © World Bank, Washington, DC. http://hdl.handle.net/10986/35459 License: CC BY 3.0 IGO."

UNESCO (2023). The Spread of Disease along the Silk Roads CC Public Domain. https://en.unesco.org/silkroad/content/spread-disease-along-silk-roads

World Bank (1999). Sustainable Tourism and Cultural Heritage. No. 36993. https://documents1.worldbank.org/curated/en/551751468176048723/pdf/369931culture0fullte xt.pdf

World Bank (2004). Social Protection for Women Migrant Workers: A Comparative Study among Sending Countries. World Bank Office Jakarta.

World Bank (2010). Social Protection for Temporary Migrant Workers: Conceptual Framework, Country Inventory, Assessment and Guidance. Washington, D.C. : World Bank Group.

World Bank (2017). Tourism for development. 20 reasons sustainable tourism counts for development. Knowledge series. Washington.

World Bank (2019). Stimulating Sustainable Development Through Tourism Concessions : Case Studies on How Tourism Can Benefit the Environment and Communities Living in and Around Protected Areas (English). Report No.: 139922. Washington, D.C. : World Bank Group.

World Bank (2020a). World Bank Group Integrated Solutions for Sustainable Tourism and Cultural Heritage. https://thedocs.worldbank.org/en/doc/951601580485306782-0200022020/original/WorldBankGCCBrochure31.1.20A3TriFoldUpdateDIGITAL.pdf

World Bank.(2020b). Tools and Resources for Nature-Based Tourism. © World Bank, Washington, DC. http://hdl.handle.net/10986/34433 License: CC BY 3.0 IGO."

World Economic Forum (2021). This is how the COVID-19 crisis has affected international tourism. https://www.weforum.org/agenda/2021/12/covid-crisis-drags-on-for-international-tourism/

World Economic Forum (2023). Rising global temperatures are already affecting the tourism industry - here's how. https://www.weforum.org/agenda/2023/08/temperatures-tourism-climate-impact/

Introduction to Machine Learning

Ayşe SALMAN

1.What is Machine Learning?

Machine learning (ML) is a field that studies the ability of a machine to learn from input data, and gradually improves its output accuracy. This means it can behave in a manner of intelligence that develops through learning likes humans do.

The conventional way to make a computer accomplish certain task is by writing explicit instructions in some programming language to execute number of steps required to solve the problem at hand. This proved to be highly successful and many software have been developed and already running to accomplish tasks in applications in numerous fields. However, this method is not always practical or even feasible in many other applications. For example, in applications such as image recognition (training a computer to recognize pictures of different people), handwriting recognition or voice recognition, traditional programming methods is not feasible. This is due to the immense number of different possibilities and combinations in the input data to be considered. It would be easier, instead of explicit instructions, to use a program that learns from the input data. This means taking the approach of letting computers learn to program themselves through experience gained from the input data or what we call *machine learning*.

Work in the field of machine learning has been motivated right from its inception by trying to mimic human intelligence through learning by writing algorithms that can learn from observation or input data. In the learning process, algorithms are constructed that can build a model from input dataset. The data set is used for the training and testing the model. The training and testing are carried on over and over again until the model is considered satisfactory. The model can then be used to make predictions or decisions expressed as outputs and without being explicitly programmed to do so.

Historically The term "Machine Learning" first appeared in 1959 by Arthur Samuel[1] who developed a computer program that learns to play Checkers game. He coined the term "Machine Learning" as "Field of study that gives computers the ability to learn without being explicitly programmed.'' This work is considered a milestone in the field of artificial intelligence and his definition became the most cited definition of ML.

However, Tom M. Mitchell[2] (1998) provided a more formal definition of ML as *well-posed* learning problem: ''A machine learns with respect to a particular task T, performance metric P, and type of experience E, if the system reliably improves its performance P at task T, following experience E'' and for each learning process we specify T, P, and E. For example, E could be a collected dataset of images, task T could be image recognition, and performance P could be the proportion of correctly categorized images.

---

[1] Samuel, Arthur (1959). "Some Studies in Machine Learning Using the Game of Checkers". *IBM Journal of Research and Development.* **3** (3): 210–229.

[2] Tom M. Mitchell (1998). ''The Discipline of Machine Learning''. School of Computer Science, Carnegie Mellon University, Pittsburgh, PA, USA, CMU-ML-06-108.

Currently machine learning is considered a subfield or branch of the field of Artificial Intelligence (AI). It has become the most important part of AI and most current advances in AI have involved machine learning.

The discipline of ML is closely related to number of other fields particularly Statistics and Data Science. The ideas of machine learning, from methodological principles to theoretical tools, have been for long established part of statistics. Statistics provides an important set of tools used at each step of a machine learning project.

ML is also considered an essential tool in the growing field of Data Science. In this field typically large amount of data are analysed to extract or extrapolate knowledge from it whatever the type of data structured, or unstructured. ML is used as a data analysis tool to examine and interpret such data and to uncover key insights in it to solve problems in a wide range of application domains.

Applications: ML is used in many and diverse applications and this is growing to cover pretty much every imaginable application. From medical diagnosis to creative art to ML projects applied to industry and almost all engineering fields. ML is also applied to literature understanding, to finance and business, to banking, and actually to many more fields. In general, the applications of machine learning are widespread as it is fast becoming an integral part of many different fields.

1. 2.Machine Learning Paradigms

The discipline of machine learning employs various approaches to teach computers to accomplish tasks. These learning approaches are traditionally divided into three broad categories, which correspond to real learning paradigms. These are: *supervised learning* (SL), *unsupervised learning* and *reinforcement learning* (RL). In addition, there are other several approaches most of which are variations or hybrids of the basic paradigms.

A.Supervised Learning (SL)

In this method the machine learning model is trained with the *training dataset* explicitly *labelled* by human experts. Each training example is a *pair* (X,Y) consisting of an input of X features (typically a vector called *feature vector*) and a desired output values Y (the *labels*) and the training data is represented by a matrix. Through training, the algorithm analyses the training data and infers a function, which can be used for mapping new unlabelled examples including samples that have not seen previously by the algorithm. so that given a new X it can map it to the most appropriate output Y (the class labels).

After training, the model is evaluated and tested by feeding it the *test dataset*. Model parameters may be adjusted for optimizing the model's performance. The result is a model that can be used in the future to predict the output given new sets of input data.

Supervised Learning is the most and widely used style of learning. Today most production machine learning applications are based on supervised learning as it helps organizations solve a variety of real-world problems. The two most common supervised machine learning tasks are *classification* and *regression.*

- Classification is a learning task for which the goal is to assign input data into specific categories. i.e., it recognizes the class or type of an entity within a dataset

according to a number of options. Classification is the basis of many applications, such as detecting if an email is spam or not, identifying images, or diagnosing diseases. The common classification algorithms are *linear classifiers*, *support vector machines (SVM)*, *decision trees*, *k-nearest neighbour*, and *random forest*.

- Regression is a learning task for which the goal is to understand the relationship between dependent and independent variables. Many problems can be identified as a regression problem such as predicting prices, or population sizes. It is commonly used to make projections, such as in sales revenue for a given business. The common classification algorithms are *Linear regression*, *logistical regression*, and *polynomial regression*.

B.Unsupervised Learning

Here, the model is trained with unlabelled data, i.e., the training data do not contain any tag information (i.e., no means of supervising, hence learning is ''unsupervised''). The input is thus a training dataset of X features but with no Y labels. The task of the learning model is analysing the input dataset to find interesting structure and hidden patterns independently without human intervention and make predictions accordingly.

The main tasks of unsupervised learning models are *clustering*, *association* and *dimensionality reduction*.

- Clustering goal is to separate a set of examples into groups based on their similarities or differences. Clustering has many applications, such as customers segmentation (to design better products, ads, etc.), and news aggregation.

- Association method uses different rules to find relationships between variables in a given dataset. These methods are frequently used for market basket analysis to understand consumption habits of customers and make recommendations.

- Dimensionality Reduction is a learning technique used when the number of features (or dimensions) in a given dataset is too high. It reduces the number of variables in input dataset to a manageable size while also preserving the data integrity. Dimensionality reduction can be used in data preparation phase for just about any machine learning application, but it can also be used by itself for specific applications such as reducing noise in an image in visual data to improve picture quality.

Unsupervised learning is less used than SL mostly because its results can be inaccurate and require more human intervention for validation. However, it is mostly useful in certain types of applications. Its ability to discover similarities and differences in information makes it the ideal solution for tasks such as exploratory data analysis, cross-selling strategies, and customer segmentation.

C.Reinforcement Learning (RL)

In this learning paradigm the aim is to train an AI-based system (referred to as an *autonomous intelligent agent*) to perform its task better through a trial-and-error strategy. The learning is guided by cumulative rewards given to the *agent* depending on its action with the aim to maximise its performance. More precisely, the agent learns mapping or strategy (called *policy*) that maximizes this reward.

An *autonomous intelligent agent* (or just *agent*) is a piece of software that acts for a user or for another program to achieve a specific goal or set of goals. The agent perceives its

environment, takes actions autonomously and continuously, and it improves its performance with learning.

Reinforcement learning is fundamentally different from supervised and unsupervised learning styles in the way data is provided for training the agent. Here that the data is not provided as a static tabular dataset, rather, the data is obtained through the model interacting with its *environment*. The data input will be in the form of sequence of data points in the form of *environment state* and *actions* which lead to a *reward*. The objective of learning is to produce a *policy* i.e., a mapping or strategy that suggests the actions that the agent should take for every possible state of the environment. The input in RL is thus a sequence of tuples in the form of "*State-Action-Reward-State-Action*".
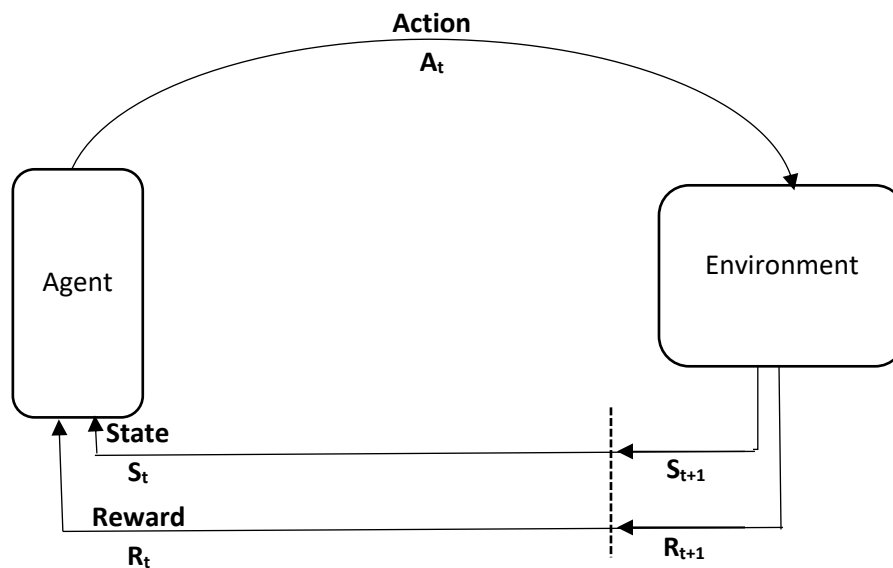
Fig. 1. Representation of The Transitions in Reinforcement Learning.

Reinforcement learning is often used to teach agents, such as robots, to learn a given task. For example, it can be used by a robot to learn how to walk in a simulated environment. It has also been used to teach computers to play games. The goal here is to maximize the points won in a game over many moves. For example, *AlphaGo*, that plays the Chinese board game *Go*. It is also used in the field of control engineering. The goal here is to dynamically control the behaviour of a system (an engine, a building, etc.) for it to behave optimally. Other uses are to train *autonomous vehicles* driving, to improve crop production, to trade stocks and also in software application *chatbot* that learns by having online conversation with human user in natural language.

Reinforcement learning closely mimics human learning pattern since the agent is learning by interacting with environment; observing, and gradually learns through trial-and-error action, like humans do.
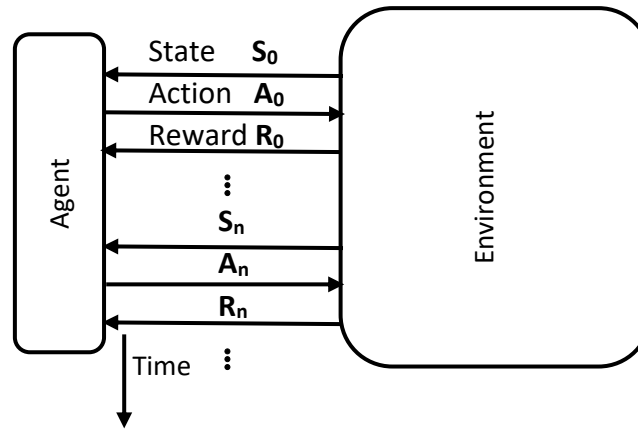
Fig. 2. Reinforcement learning model.

3. Other Learning Methods

Supervised, unsupervised, and reinforcement learning are the three core learning paradigms. Nevertheless, there are other ways to learn that are based on these core paradigms in some combination or with some variation that may depend on the specificities of the problem to solve or the type of the input data. In general, different learning methods typically solve different kinds of tasks. Here are the main other learning paradigms.

A. Semi-Supervised Learning

This is a branch of machine learning that lies between supervised and unsupervised learning methods. In the supervised paradigm all the input data is labelled, whereas in the unsupervised paradigm all the data is unlabelled. In semi-supervised learning the model is trained from a dataset that includes both types of data; labelled and unlabelled. Typically, the unlabelled dataset is much bigger than the labelled dataset and the goal is to learn a predictive model from such combination datasets.

The main objective of semi-supervised learning is to overcome the shortcomings of both supervised and unsupervised learning. Supervised learning requires huge amount of labelled data for training, which is often expensive and time-consuming process. There may be large amount of unlabelled data available but there is no means to get enough labelled data to produce an accurate supervised model. In fact, in many of the real-world applications (e.g., image processing and text processing), there is an abundant supply of unlabelled data, but requires human experts to label them. On the other hand, unsupervised learning clusters unlabelled data based on similarity in the data points by using either clustering or maximum likelihood, an approach that suffers poor accuracy. Semi-supervised learning can be the technique used to increase the size of the training data. The idea behind it is that labelling just a small sample of large data might be enough to result in the similar accuracy or even better than fully labelled training data.

There are several approaches to semi-supervised learning, most common are *self-training* and *co-training*.

Self-training: in this approach the model is trained at the beginning on only the labelled data. The resulting model is used to obtain predictions for the unlabelled data points. Then, the most confident of these predictions are added to the labelled data set, and the model is re-trained on both the original labelled data and the newly obtained labelled data (called *pseudo-labelled* data). This procedure is typically iterated until no more unlabelled data remain.

Co-training: in this approach the model is trained based on two *views* of data i.e., to treat a datapoint differently based on whether it has a label or not. After each training step, the most confident predictions for each view are added to the set of labelled data for the other view. Then, the retrained model is fed with the new data, more accurately predicting using supervised machine learning techniques.

Semi-supervised learning is of great use in a variety of applications for which vast quantities of unlabelled data are available for training while labelling small amount can lead to a significant improvement in accuracy. For example, natural language processing (NLP), large volume of datasets like network traffic classification and speech recognition. It is effective for medical images categorization, for which only small amount of training data could be labelled by experts. Used as well in person identification in Web-cam images where here also a few training images are labeled.

B.Active Learning (AL)

This is a ML method in which the model requests the information it needs to perform better. This method ensures that a model is trained only on the data most likely to increase its performance. At the beginning of an active learning procedure, the input consists of only unlabelled data i.e., of input but no output. During the learning procedure, the model can request some of the unknown outputs from an *oracle* (most of the time, is a human annotator, but it could also be a program) to predict the output from a given input. This iterative ''human-in-the-loop'' method is built on the idea that not all samples are valuable for learning, so the algorithm chooses the data it learns from.
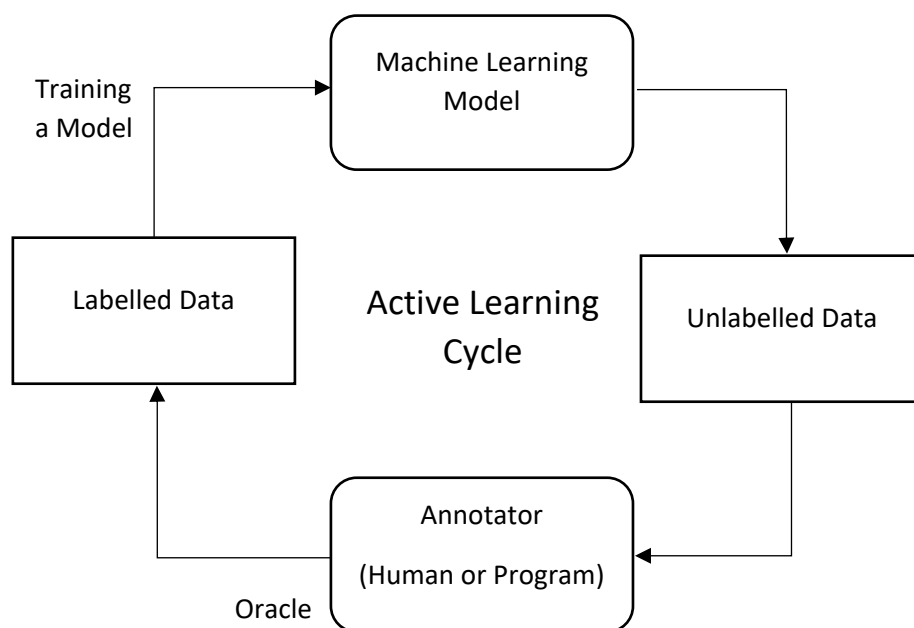
Fig. 3. Active learning loop.

AL can be considered a type of semi-supervised learning, meaning models are trained using both partly labelled and mainly unlabelled data. However, here labelling data is done dynamically and incrementally during the training phase. The basic concept behind active learning is that a learning algorithm can potentially achieve greater accuracy with fewer training labels if it is allowed to choose what label would be the most beneficial for it to learn from. Active learning can also be seen as a subset of reinforcement learning since the model can be

considered an active agent but with the difference that the agent here cannot alter the environment.

AL is very popular in the areas of natural language processing (NLP), computer vision and recommendation systems. Many such applications require lots of labelled data which has high prohibitive cost to labelling and active learning is key to address such problem while improving performance.

C.Transfer Learning

This is a learning approach that deals with transferring knowledge gained from one learning task to another learning task. This is particularly useful when the second task is related to the first task or when there is limited data available for the second task. The strategy is generally to train a model on the large dataset and then use this *pre-trained model* to help train another model, perhaps on limited data, on the task that is the real target.

Transferring information from previously learned tasks to new tasks has the potential to significantly improve learning efficiency and as a result, great amounts of time and resources can be saved. However, transfer of knowledge is only possible if the *source* task is sufficiently related to the *target* task. The pre-trained model may not be well-suited to the second task if the two tasks are vastly different or the data distribution between the two tasks is very different.

Transfer learning can be used to build better models. By using the learned features from the first task as a starting point, the model can learn more quickly and effectively on the second task. This can also help to prevent *overfitting*, as the model will have already learned general features that are likely to be useful in the second task.
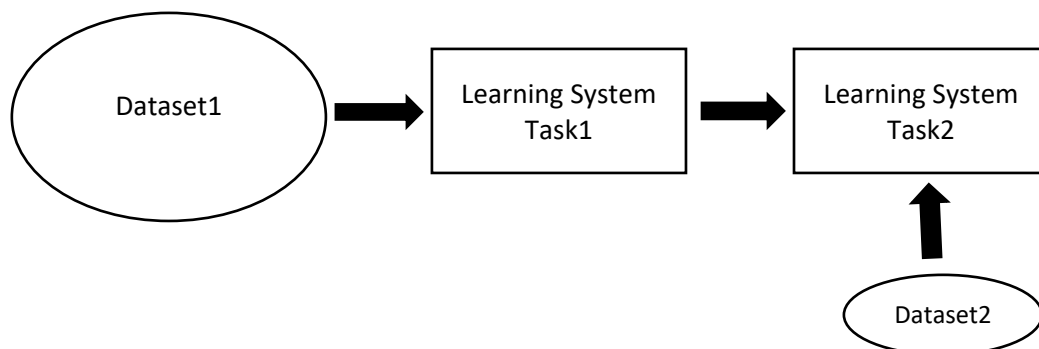

Fig. 4. Transfer Learning Model.

Transfer learning is very popular in domains like NLP and computer vision used to learn from image, audio, and text data. For example, machine learning models trained on images learn similar features (edges, corners, gradients, simple shapes, etc.) from different image datasets, these features can then be reused to solve other image recognition tasks. Without transfer learning, it would be hard to accomplish something useful in these domains.

D.Self-Supervised Learning (SSL)

This is a machine learning approach where the model trains itself to learn the data representation. Once the model learned how to represent data, it can then be used to tackle a *downstream task* (the actual problem to solve).

SSL employs two main phases: *pretext task* and *downstream tasks*. In pretext task stage pseudo labels are generated automatically without human intervention by taking into account

the attributes of the dataset. These pseudo labels are then used in the downstream tasks stage through a *knowledge transfer* procedure.
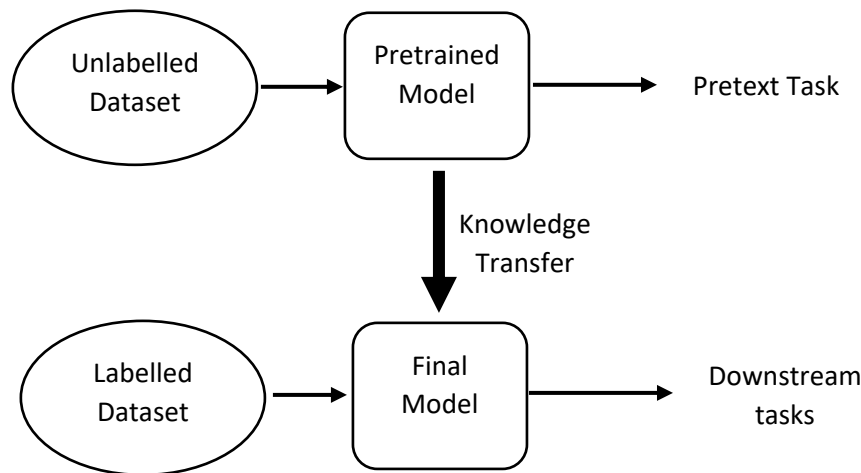
Fig. 5. Self-supervised Learning Model.

The main advantage of SSL methods is that they do not need human-annotated labels, which means they are designed to take in datasets consisting entirely of unlabelled data samples. The draw backs of SSL are its demand for more computing power, and it can suffer from poor accuracy.

Self-supervised learning is mostly used in computer vision for tasks like colorization, 3D rotation, depth completion, or context filling (fill a space in an image or predict a gap in a voice recording) or in helping to predict the missing words within a text. Mostly, its applications focus on *improving* computer vision and improving natural language processing (NLP) capabilities.

E. Online Learning (OL)

This is a technique of machine learning in which the model learns iteratively from a data that arrives in sequential order, and the model updates itself after each step of input.

This technique is in contrast to the traditional machine learning methods that run in *offline* (*batch*) mode. Batch mode generates the best predictor by learning on the entire training dataset that is fed in advance. However, it suffer from drawbacks like low efficiency in both run time and memory space. Also, it suffers from poor scalability for large-scale applications because the model often has to retrain from scratch for any new batch of data.

Online learning is able to overcome the drawbacks of offline learning, meaning learning takes place as data becomes available and the model can be updated instantly for any change in data after learning from each individual training instance. Therefore, online learning is far more efficient in time and space and scalable for large-scale learning tasks in real-world data, where data is not only large in size but is also provided as stream over time. Online learning is also useful because it naturally gives more importance to more recent data than to older data (which is often less relevant).

OL is not really a paradigm in itself since the underlying problem can be both supervised (labelled examples) or unsupervised (unlabelled examples).

OL is a common technique used in areas of machine learning where it is computationally infeasible to train over the entire dataset. It is also used in situations where it is necessary for the algorithm to dynamically adapt to new patterns in the data, or when the data itself is generated as a function of time. For example, it is particularly useful in applications that predicts the weather or in stock price prediction. It is commonly used in the finance market and

economics, where new data is always emerging. In particular in regression analysis tasks, i.e., time series analysis in financial markets, where data instances naturally arrive in sequential order.

4.Deep Learning

Deep learning (DL) is a class of machine learning algorithms that is based on using *artificial neural network* (ANN) with multiple layers between the input and output layers (called deep neural network). Learning in deep learning can be in any of the traditional styles such as supervised or unsupervised.

Artificial neural networks are at the heart of deep learning algorithms. They are comprised of node layers, containing an input layer, one or more *hidden* layers, and an output layer. Each node (an *artificial neuron*) connects to another and has an associated *weight* and *threshold*. A node is activated sending data to the next layer if its output is above the threshold value. The weight represents the strength of the connection, larger weight value will more significantly change the output. These components as a whole function similarly to a human brain and can be trained like any other ML algorithm allowing it to "learn" from large amounts of data. There are various types of ANNs, which are used for different use cases and data types. In general, a neural network that consists of more than three layers which would be inclusive of the input and output layers (i.e., deep neural network) can be considered a deep learning algorithm.

In deep learning (as in many machine learnings) useful representations makes an effective learning task. The hidden layers of the neural network can be performing *representation learning* as a pre-processing step before performing classification or predictions. **Representation learning** (or **feature learning**) is an approach in machine learning for feature extraction from unlabelled data by training a neural network on learning representations of data that are useful for a specific task. The input layer in combination with all hidden layers is supposed to convert the input to useful representation. Each hidden layer maps its input data to an *inner representation* that tends to capture a higher level of abstraction. The performance of deep machine learning algorithm largely depends on the representations it receives. This representation acts as input to the last layer which usually is a classification layer. This classifier makes use of the representation received from earlier layers towards the machine learning task that was intended to perform.
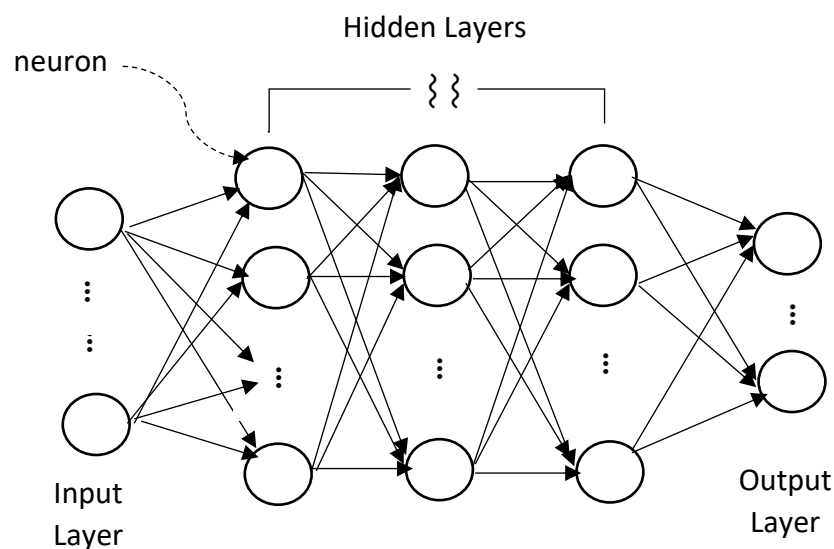
Fig. 6. Deep Neural Network Model.

However, deep learning algorithms are incredibly complex and require a tremendous amount of computing power than any other traditional learning algorithm. But due to the acquisition of large amount of data and the massive computational power available today, deep learning methods are now heavily used and different types of neural networks are now available to address specific problems or datasets.

The deep learning technology is now applied in various fields and used for many different tasks and applications. Few examples are self-driving cars, chatbots, automatic speech recognition (ASR), computer vision, image recognition and medical image analysis. Also in financial services, forecasting and marketing research, fraud detection and risk assessment. They also provide the best solutions in problems like image recognition, speech recognition, and natural language processing.

5.Machine Learning Process

There are six main phases in the machine learning process:

1.Data Acquisition.

Machine learning starts with data, acquiring the data is the basic and first step of the machine learning process. The data may come from different sources, it can be real-life data gathered and stored before, or comes as online stream of data, it may come from synthetic data generators, or it is a reference dataset publicly accessible.

2.Data preparation.

This is the act of manipulating the raw data into a form that can be used to train and evaluate a machine learning model. Data preparation is a complex task, it can include several activities and it is time-consuming as well. Generally, there is a number of common or standard activities in data preparation. These main activities are as follows:

- Data fusion and Data augmentation: First integrating data if data comes from multiple sources and in different formats. This is to produce more consistent and useful data.

- Also, augmentation techniques may sometimes be needed to increase the amount of data and helps to reduce *overfitting*. Overfitting is a common problem in machine learning, and it happens when the model starts learning from the noise and inaccuracies in the data entries. Overfitting reduces the model's ability to generalize and fit to additional data or predict future observations reliably.

- Data Cleaning: This is the process of detecting and correcting or removing mistakes or errors in the data. Also identifying and removing duplicates, irrelevant parts and extraneous information in the data.

- Feature Selection: Feature (also known as variable or attribute) is an individual measurable property or characteristic of a phenomenon. The data may contain some features that are either *redundant* or *irrelevant* and can thus be removed without much loss of information. Feature selection identifies and selects those input variables that are most relevant to the task for use in model construction.

- Dimensionality Reduction: The number of input variables or features in a training dataset is called its dimensionality. Large number of input features (variables) in dataset can cause poor performance for ML algorithms. Dimensionality reduction is the process of reducing the number of input features. A model with too many dimensions (also called parameters) is likely to *overfit* the training dataset and therefore may not perform well on new data.

- Data labelling: This is the process of adding tags or labels to the data used for training in *supervised learning* paradigm. These tags form a representation of what class of objects the data belongs to and helps a machine learning model learn to identify that particular class of objects when encountered in data without a tag. Data labelling is mainly a time-consuming and labour-intensive process.

- Data Splitting: One major component of data preparation phase is breaking down the datasets into multiple sets . In particular, three or two data sets are commonly used in different stages of the creation of the model: training, validation, and testing. A larger part (~80%) would be used for training (or training and validating) the model, as better training requires more data. While the other smaller part (~20%) is used for testing and evaluation purposes. Data splitting is an essential aspect of data preparation for an unbiased evaluation of models' performance.

3.Choosing a Model

Model selection is the process of selecting the machine learning model that is most appropriate for a given task. There is a variety of model selection approaches, and the following are a number of determining factors to be considered in model selection:

- Type of the Problem: Machine learning algorithms were designed that each solves a specific problem and serves a specific purpose like *classification*, *regression* etc. So, understanding the problem and what kind of an output is required is basic factor in selecting a model.

- Accuracy: Accuracy in machine learning measures the effectiveness of a model prediction; how accurate its outcome in generalizing to new data it has not seen before. Sometimes an approximation is adequate which reduces the model's processing time effort. Approximate methods also naturally tend to avoid *overfitting*.

- Training Time: Time taken to train a model varies between algorithms. However, the running time is a factor of the size of the data set and the accuracy required. Higher quality output means longer time training. But if only approximate output is adequate fast training might be enough.

- Linearity: Using a linear machine learning algorithm such as *linear regression* is simpler and takes less time to train. So, linear approach to the problem solution should be followed whenever possible. However, linear algorithms assume linear data which might not be the case for more complex problems and might lower the accuracy. Despite this drawbacks, linear algorithms can still be used as a first strategy to serve as a benchmark to try more complex algorithms.

- Number of Parameters: Parameters, such as error tolerance or the number of iterations, are factors that affect the algorithm's behaviour. An algorithm with large numbers of parameters typically indicates that it has greater flexibility. It can often achieve very good accuracy but increases much the time required to train.

- Number of Features: For certain types of data, the number of features can be very large compared to the number of data points. However, large number of features can complicate learning algorithms, making training time unfeasibly long. The algorithm preferred should be from those particularly suited to dealing with a high number of features.

4.Model Training

The training process is a long series of trial and error. The training dataset is fed to the algorithm, and over time the human programmer can observe how the model interprets the data. If necessary, adjustments are made including changing the model parameters to make it more accurate. As the process continues, the model should get increasingly reliable.

5.Model Testing and Evaluation

After training, the model needs to be tested to check its accuracy. This is done by feeding the model with the new unseen dataset part allocated for testing (from Step 3). If the results are not satisfactory, the prior steps need to be revisited so the root cause behind the model's underperformance can be identified and, subsequently, rectified. The model should be further retrained and re-evaluated over and over again until reaching acceptable level. Once satisfactory, deployment follows.

6.Deployment

This is the process of placing the finished machine learning model into a production environment where it can be used for its intended purpose. However, deploying a model is not a one-time exercise but rather a continuous process. This is because for a model to predict accurately, the data that it is making predictions on must have a similar distribution as the data on which the model was trained. In actual environment that might not always be the case and data distributions can be expected to change or drift over time. The usual practice is to continuously monitor the incoming data and retrain the model on newer data if the data distribution has deviated significantly from the original training data distribution.
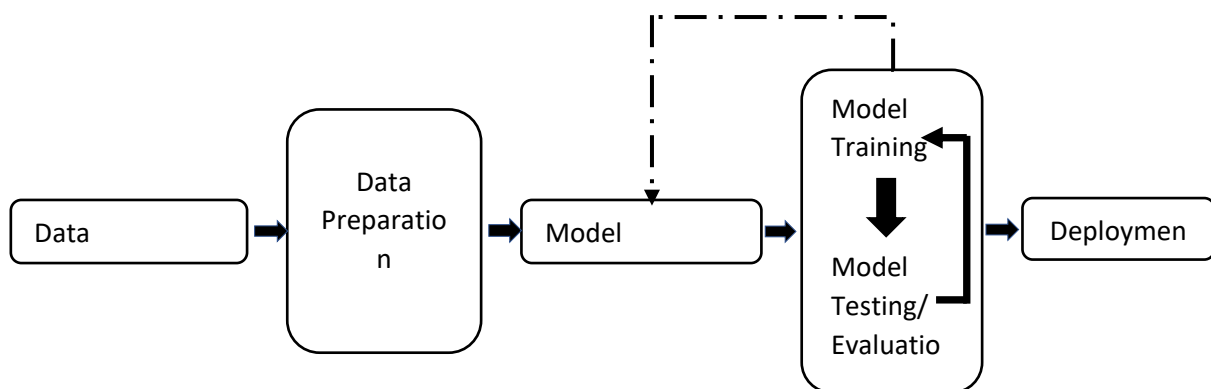
Fig. 7. A Pictorial Representation of the Learning Process.

Theories of Development and the Fişek Institute

Deniz DİNÇ[1]

Introduction

The Fişek Institute is one of the most significant non-governmental organizations, which focuses on the social risk groups in Turkey. This study examines the characteristics of the institute based on political theories and theories of development. The author of this study also found the opportunity to visit the institute time to time after 2000s. During my research about the institute, I visited the Fisek Institute Science and Action Foundation for Child Labor in Kızılay, Ankara. I discussed the foundational aspects with a representative and obtained journals from the foundation, namely the *Çalışma Ortamı*. This journal, along with the institute's website, serves as the primary source for this study. This study, in the first section, begins by providing information about the basic characteristics and organizational structure of the Institute. In the second section, this study delves into the foundational assumptions of theories of development. The Fişek Institute is evaluated in light of the development theories. With respect to these theories, the argument presented in this study is that the Fişek Institute is significantly influenced by dependency theories, and its political stance aligns with that of social liberalism taking into account political ideologies. Social liberalism simply highlights to reduce the gap between the rich and the poor through social welfare policy opportunities. Currently the emphasis of most of the liberals is on liberty and the origins of the concept of the liberty dates back to the political thought of John Stuart Mill. Mill's book *On Liberty*, which highlighted freedom of thought and speech became the fundamental manuscript in liberal political theory (Mill, 2002). After John Stuart Mill the liberal emphasis on liberty has taken two differing routes. One approach became a continuation of Locke's concern with property rights and political rights. The other approach developed by the late nineteenth century in the writings of Thomas Hill Green. The argument of some people need help to be able to exercise liberty was the beginning of welfare liberalism (Sargent, 2009: 141). The most significant contribution to social liberalism developed by John Rawls through his publication *A theory of Justice* in the second half of the twentieth century. In his work, Rawls formulated fundamental principles of social contract via contractual aspects of the liberal political theory (Rawls, 1971: 60). In the light of this entire theoretical framework, in this study I will argue that the political ideology of the Fişek Institute is shaped around social liberalism and the dependency school approach among the various development theories.

The Basic Features, Organizational Structure, Projects, and Financial Sources of the Fişek Institute

The Fisek Institute focuses on social risk groups, particularly working children and women. Its primary goal is to enhance occupational health and safety conditions in small-scale enterprises. Working conditions in small-scale enterprises, which employ fewer than 50 individuals, are particularly challenging in Turkey. The absence of institutional health services leads to unsafe working conditions in these enterprises. Additionally, child labor is prevalent in such settings. One of the main objectives of the Fişek Institute is to improve the working conditions of child laborers and to promote occupational hygiene and health. The institute is

[1] Bağımsız Araştırmacı, Gazimağusa (KKTC); ORCID: 0000-0001-7894-0439, E-posta: denizyeniden@gmail.com

keenly aware of gender inequalities and actively works towards improving the living conditions of women and eradicating gender disparities. The pivotal role of women in development is substantiated by the United Nations' Human Development Index and the Fişek Institute addresses these issues with great sensitivity (HDI, 2023).

The institute emphasizes a "commodity medicine" approach and advocates for "health for all". Demands for social justice are readily discernible in *Çalışma Ortamı* (Working Environment), the institute's peer-reviewed journal. Fundamentally, the institute supports the equitable distribution of resources. It backs public education and social medicine policies. The institute's position in development studies is marked by a tendency towards a social state. In summary, it appears that the Fişek Institute's vision contradicts neoliberal policies.

A historical examination of the institute's origins and organizational structure leads us to Professor Dr. Nusret Fişek. The institute is deeply influenced by his work, which is why it is named in his honor. Professor Dr. Nusret H. Fisek was the first Turkish citizen to earn a doctorate in medical sciences. He believed that living in healthy conditions is a fundamental human right. As a result, he advocated for the socialization of health facilities. He contributed to the welfare-oriented approach of the 1961 constitution of Turkey. His philosophy, asserting that health services should be accessible to everyone without discrimination, found support for implementation. However, after the 1970s, his efforts were obstructed by right-oriented governments seeking to hinder the socialization of health services. Another area of focus for him was population control resources. He was among the few who recognized the importance of population in development before the 1950s. He advocated for the democratization of the country after the military coup in 1980 and opposed death sentences and torture. His stance prevented many executions. Professor Dr. Nusret H. Fişek was not only a modern democrat but also an accomplished medical academic. He contributed to and directed much of the medical research, which earned him numerous awards from national and international institutions (Fişek Institute, 2023).

The groundwork for the institution was laid in 1979, and it was formally established as the Fişek Health Services and Research Institute in 1986. Eleven years later, in 1997, the Fişek Institute – Science and Action Foundation for Child Labor was also established. According to the foundation's website, the significant events and projects of the institution are historically outlined below:

- 1982: A health unit was established in Ankara-Ostim.
- 1982-1986: Periodical health checks and pre-employment medical examinations were conducted in Atasanayi, Ostim, Siteler, and Otosanayi industrial regions.
- 1984-1986: Report on Medical-Social Problems of Child Labor (in Ankara, Kızılcahamam, Bursa, Eskişehir) supported by the Population Council/MEAwads.
- 1985-1986: Report on "Special Risk Factors of Children At Work" (in Ankara; also in many other cities) supported by WHO.
- 1986: Establishment of the Fisek Institute Private Health and Research Services Ltd. Co.
- 1986: Proposal for a Feasible Measure That Can Be Taken for the Improvement of Working Conditions in Small Enterprises (for ILO).
- 1992-1994: Project of "Health Services for Children Working in Small Scale Enterprises" (in Ankara, Istanbul, Denizli) supported by ILO/IPEC.
- 1992: A mobile clinic was purchased and services were provided for Ankara.

- 1992: "Working Environment" (Çalışma Ortamı) was published, and "Readers Seminars" began.
- 1994: A health unit was established and a mobile clinic was acquired in Istanbul-Yenibosna.
- 1995: Project of "Improvement of Working Conditions at Small Scale Enterprises Employing Child Labor and Occupational Safety Exhibitionhouse" (in Ankara, Istanbul, Denizli) supported by ILO/IPEC.
- 1995: A health unit was established in Ankara-Sincan; a health unit was established and a mobile clinic was acquired in Denizli; a mobile clinic was bought, thus mobile dentist clinic practice started in Izmir.
- 1997: The mobile clinic in Izmir was relocated to Ankara.
- 1997: "Fisek Institute Science & Action Foundation for Child Labor" was established.
- 1998: A health unit was established in Ankara-Uyumlu industrial region (Fişek, 2008).

The institute continues to be involved in numerous projects. For example, the Young Girls House, Urban House Model, Shared Health Centre, and Bureau of Working Children in the Pendik Industrial Region, among others. The Young Girls House model aims to prevent early marriages and keep girls from entering the workforce prematurely. This project is implemented in Ankara-Türközü. The Urban House Model aims to help rural citizens transition into urban life. Similarly, other projects aim to contribute to the development of Turkey.

In its early years, the institute did not receive any social or international funding. The dedication and sacrifice of volunteers were instrumental in its operations. All personnel at the Fisek Institute work on a voluntary basis, fostering sincerity and solidarity among them. Additionally, employers bear the cost of occupational health and safety services. For instance, some mobile clinic facilities are funded by small-scale enterprises. Another source of financial support stems from the institute's direct connection with society. The institution's significance is clearly recognized by the public, leading to charitable contributions from individuals who are sensitive to its mission. Sales of postcards, handmade crafts, and other items further contribute to its finances. In 1985, the institute received financial support from the Population Council-MEAwards, and between 1992 and 1999, the ILO-IPEC (International Labor Organization-International Program on the Elimination of Child Labor) provided financial support for the Fişek Institute.

The Evaluation of the Fişek Institute Based on Theories of Development

Modernization, Dependency, and World-System theories are the three primary theories in the field of development studies. While institutions cannot be neatly categorized into any single theory, these theories serve as crucial frameworks for understanding them. Therefore, this study provides an overview of the fundamental concepts of development theories. The Modernization school builds its argument on the dichotomy between traditional and modern societies. This school views the development process as irreversible, progressive, homogenizing, and Eurocentric (So, 1990: 33-38).

As for the Modernization school, once the process of modernization commences, it becomes unstoppable. Hence, resisting this process is futile. Once contact is established between third-world and Western countries, the expansion of modernization becomes inevitable. According to the modernization approaches Modernization is not only unavoidable but also desirable. Modernized political systems offer citizens greater facilities. Modernization fosters tendencies toward convergence among societies. Modernized societies become

increasingly similar to each other, making modernization a homogenizing process. Rostow's theory also underscores the step-by-step transformation of societies from primitive to modern. The Eurocentric perspective shapes a model for latecomers in the modernization approach. In other words, latecomers, such as third-world countries, are expected to follow the development path of prosperous Western countries (Ibid., 34). Briefly, modernization theories essentially legitimize the hegemony of Western countries. Supporters of modernization theory view Communism as an obstacle to development. Therefore, third-world countries are encouraged to emulate the foreign policies of the United States and Western nations. As a result of these arguments, it can be said that modernization school and its theories are not merely academic exercises; they legitimize the capitalist approach to Western-oriented development (Ibid., 36).

Dependency theories, which emerged in Latin America after the bankruptcy of ECLA (United Nations Economic Commission for Latin America), challenge the hegemony of modernization school of development theories. In contrast to the internal perspective of the modernization school, dependency theories view development problems from an external angle (Kambhampati, 2004: 67-94). According to Andre Gunder Frank, third-world countries have endured the deep scars of colonialism. The link between Western countries and third-world countries involves an imperialist structure. Underdevelopment is not a natural condition but a product of the long history of colonial domination in third-world countries. Frank has developed the metropolis-satellite model to explain the underdevelopment mechanism in third-world countries (Frank, 1966). This model posits that the economic surplus of the satellite is transferred to prosperous metropolis countries. The metropolis compels the satellite to specialize in agriculture and raw materials to meet the demands of the metropolis. Consequently, dependency theories have a pessimistic outlook regarding the direction of development (So, 1990: 95-98).

Dos Santos, one of the most important thinkers of dependency theory, introduced the concept of dependence. Santos explains dependence through the lenses of colonial and financial-industrial dependencies. Financial-industrial dependence can be particularly observed in the debt crises of Latin American countries. The metropolis creates a light-industrial structure reliant on assembly. Satellite countries accumulate debt borrowed from international Western institutions, such as the IMF, exceeding sustainable levels. The relationship, built on exploitation, is orchestrated by the administrative elites of third-world countries. In contrast to the orthodox Marxist deterministic concept of a socialist revolution, dependency theory argues that socialism can be achieved in underdeveloped countries. In summary, dependency theory stands in stark contrast to Eurocentric modernization theories. It explains problems from an external perspective and provides national, independent development pathways for third-world countries (So, 1990: 98-109).

World-System theories, as formulated by Wallerstein, share some fundamental aspects with dependency theory but, unlike the latter, they recommend global solutions for development problems. Wallerstein emphasizes a three-tiered model: core, semi-periphery, and periphery. This triple model explains the economic growth of South Asian countries. In contrast to the binary core-periphery concept of dependency theory, the triple model allows for upward and downward mobility within the world system (Wallerstein, 1974: 340). World-System theory does not adhere to static explanations, which sets it apart from dependency theory. Furthermore, World-System theory highlights that real socialist countries were not independent from the capitalist world system. Thus, in contrast to dependency theory, World-System theory does not view socialism as the solution to development problems (Kambhampati, 2004: 67-78).

Having examined the fundamental tenets of development theories, it is possible to assess the Fişek Institute based on these theories. Firstly, it can be observed that the Fişek Institute strongly opposes neoliberal policies. This opposition strikes at the heart of neoliberal policies,

as the concept of "Free health for all" proves more effective than other welfare approaches. While neoliberal policies may be legitimized through the ideological apparatus of states, the Fisek Institute advocates for social justice and equal opportunities for all, aligning with the perspective of Thomas Hill Green. T. H. Green, a social liberal political philosopher, argues that affirmative action policies are necessary to protect laborers from the insecurity of capitalism. The main difference between Green's thought and Marxism is the absence of a class struggle. Thus, Green does not advocate a revolutionary perspective; instead, he seeks to reform the unequal relations within capitalism (Sabine, 1961: 725-743). In this sense, based on the writings found on the institute's website and in *Çalışma Ortamı*, it is evident that the Fişek Institute's political and social philosophy is similar to Green's beliefs.

Another notable point is that the institute shares many essential aspects of dependency theory. G. Fişek, the editor of *Çalışma Ortamı*, implies that Turkey's independence has been gradually eroded since 1946, and the country's problems did not suddenly emerge (Fişek, 2008: 18-19). This perspective resembles the external focus of dependency theory. The institute emphasizes that there was no recognition of imperialism during the early years of the Turkish Republic, and there was no criticism of the government between 1923 and 1946. This data corroborates one of the assumptions of dependency theory, which suggests that when global economic stagnation occurs in Western countries, third-world countries can find opportunities for development. For example, Brazil made significant strides in development during the period of the global economic stagnation in 1929 and World War II (So, 1990: 91-165). Similarly, in the early years of the Turkish Republic, the country had ample opportunities to implement an independent development leap. An examination of Turkey's planned economic approaches reveals that Turkey initially pursued a balanced development model (Yavilioğlu, 2002: 55).

Despite sharing many assumptions with dependency theories, the Fişek Institute exhibits some key divergences. Firstly, the ultimate goals of dependency theories are to achieve a socialist revolution, viewing it as the only solution to severing ties with the first world. However, the Fişek Institute does not have a stated aim of achieving socialism, at least not in its official documents. In this respect, the institute's position, considering ideologies, aligns more with social liberalism and social democracy. Another significant difference between the Fişek Institute and dependency theory is that while the institute primarily operates at the national level, it collaborates with international organizations, such as the International labor Organization (ILO) and the United Nations (UN) (Alpan, 2007: 6). This indicates that the institute is aware of global changes and adjusts its organizational level in light of the globalization process.

Conclusion

The Fişek Institute supports the socialization of health services. Neoliberal policies have been obstructing preventive and protective health services since 1980s, leading to an increase in inequalities among citizens. In this regard, the Fişek Institute adopts a multidisciplinary approach to achieving a more equitable and healthy Turkey. Ideological concepts play a significant role in determining development models and approaches. Therefore, both dependency theory and social liberal ideas serve as key tools for understanding the institute's political and ideological positions. In summary, it is evident that Turkey would benefit greatly from more organizations like the Fişek Institute in order to rise from its current ranks in the United Nations Human Development Index. Turkey's recent Human Development Index (HDI) value for 2021 is 0.838, which positions the country at 48 out of 191 countries (Countryeconomy.com, 2023). Without any doubt, social welfare policies and HDI index are highly related with each other. The Western developed countries to a large extent achieved HDI index high scores through their massive social welfare policies as well as social equality opportunities. As Gamble (2006, 20-35) points out, while neoliberal policies are implemented

very harshly in the global south, the gains of the social state still maintain themselves to a certain extent in many developed western countries. Therefore, if real development is aimed, away from the interests of capital and neoliberal imperialism, it is inevitable that many more non-governmental institutions such as the Fişek Institute will be needed for the real development.

References

Alpan, Y. (2007). Sürdürülebilirlik Sınavı. *Çalışma Ortamı* 93 Temmuz-Ağustos.

Fişek, A. G. (2008). Persembenin Gelisi Carsambadan Bellidir. *Çalışma Ortamı* 96 Ocak-Subat.

Frank, A. G. (1966). *The Development of Underdevelopment*. NY: Monthly Review Press.

Gamble, A. (2006). Two Faces of Neo-liberalism. In Robinson, E. (Ed.), *The Neo-Liberal Revolution: Forging the Market State* (pp. 20-35). Basingstoke: Palgrave Macmillan.

Kambhampati, U. (2004). *Development and the developing World*. Oxford: Blackwell Publishing,

Mill, J. S. (2002) *On Liberty*. NY: Dover Publications.

Rawls, J. (1971). *A Theory of Justice*. Cambridge, MA: Harvard University Press.

Sabine, G. H. (1960). *A History of Political Theory*. (Third Edit). NY: Rınehard and Winston.

Sargent, L. T. (2009). *Contemporary Political Ideologies*. (Fourteenth Edit). Wadsworth: Wadsworth Cengage Learning.

So, A.Y. (1990). *Social Change and Development.* California: Sage Publications.

Yavilioğlu, C. (2002). Geri kalmışlık olgusu ve ekonomistik kalkınma teorileri. *C.U. Iktisadi ve Idari Bilimler Dergisi,* 3 (2), 49-70.

Wallerstein, I. (1974). *The Modern World-System, Volume I: Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century*. San Diego Ca: Academic Press.

Internet Sources

Countryeconomy.com (2023). *Turkey Human Development Index-HDI* (accessed on 04.07.2023,

https://countryeconomy.com/hdi/turkey).

Fişek Institute (2008). *Fişek Institute History.* (accessed on 19.11.2008,

http://www.fisek.org.tr/e00.php3).

HDI: Human Development Index (2023). *Reports and Publications.* (accessed on 14.07.2023, https://hdr.undp.org/reports-and-publications).

Nusret Fişek (2023). *Kimdir.* (accessed on 11.07.2023, https://nusret.fisek.org.tr/).

Teaching Turkish as a Foreign Language in Greece: Current Situation

Özlem KANAT[1]
Katerina FRANTZI[2]

Introduction

Today, teaching Turkish as a foreign language is carried out in universities and various language education centers in Turkey. Turkish is used as an official language in Turkey and other Turkish-speaking countries (Göçer, 2008; Kaya, 1994). However, there is also interest in learning Turkish in various parts of Europe. People who want to learn Turkish in Europe can follow several different paths in this regard:

Language Schools and Courses: There are language schools and courses for those who want to learn Turkish in many European countries. These courses are usually offered by local universities, language schools or training centers. These courses can be aimed at those who want to improve their basic grammar and communication skills (Kaya, 1994; Ungan, 2006).

Online Resources: The Internet offers a wealth of resources for those who want to learn Turkish. You can benefit from resources such as free language learning platforms, lesson videos, language exchange partners and online language learning applications. Applications such as Duolingo, Memrise and Babbel can help those who want to learn Turkish.

Language Exchange Partners: Finding language exchange partners is an effective way to improve your language skills. This means learning by exchanging languages with a Turkish speaker. You can improve your language skills online or by participating in local language exchange events.

Self-Study: Self-study may be suitable for those who have a desire to learn Turkish. You can improve your language skills by using language learning books, grammar guides and self-study methods. However, this method may require more self-discipline.

Language Programs and Exchanges: Some universities and educational institutions offer students the opportunity to learn Turkish. In addition, Erasmus+ and other international exchange programs offer students from Europe the opportunity to experience language and culture in Turkey.

Teaching Turkish in Europe

Turkish is offered as an option for foreign students, diplomats, academics and others interested in learning Turkish in Turkey. In addition, Turkish is taught in various programs at universities, language courses and private language schools outside Turkey. Generally, Turkish language teaching follows a program in accordance with the European Language Portfolio. The European Framework is a linguistics tool developed by the European Union (EU) to provide a clear and understandable definition of language competences in language learning, teaching and assessment processes. It is officially known as the "European Language Portfolio" (EU, 2023; Ungan ,2006).

---

[1] Dr. Asst. Prof., Ankara University
[2] Prof. Dr., University of the Aegean

The European Language Portfolio is a framework for identifying language learners' language skills, their ability to use language and their progress towards language goals. It also provides a reference for language teachers, institutions and employers. The European Language Portfolio describes language competences at six main levels. These levels are A1, A2, B1, B2, C1, B2, C1 and C2, as specified in the Common European Framework of Reference for Languages (CEFR). At each level, language skills such as reading, writing, listening and speaking, and language-using abilities are described in detail.

The European Language Portfolio contains many tools and resources for students to assess themselves and set learning goals in the language learning process. Through language portfolios, learners can monitor, record and showcase their language development and progress. The European Language Portfolio is a framework widely used in language teaching and language assessment practices and is recognized as an international standard in the field of language education (EU, 2023).

Teaching Turkish in Greece is a process carried out with the aim of strengthening cultural and linguistic ties between the two countries. Turkish language teaching is usually carried out by Turkish Cultural Centers, universities, language schools and private language courses in Greece. Turkish Cultural Centers play an important role in promoting Turkish and our culture.

Turkish language teaching in Greece is generally carried out in two ways:

Teaching Turkish at Academic Level: Universities in Greece have Turkish departments or Turkish Language and Literature programs. These programs aim to teach students the grammatical structure of Turkish, vocabulary, reading and writing skills, listening and speaking practices. Turkish departments also focus on Turkish literature, culture and history.

Language Schools and Private Courses: Language schools and private courses throughout Greece offer Turkish language instruction. These courses cater to students who want to learn Turkish at various levels. They usually offer lessons and activities to improve speaking, listening, reading and writing skills. In these courses, you will also learn about Turkish culture and traditions.

Turkish courses at these universities may focus on the basic grammar, reading, writing, listening and speaking skills of the Turkish language. Students are also offered a variety of language activities and cultural events to provide practical application and in-depth understanding of Turkish. Commonly used resources for teaching Turkish can be listed as follows:

"OK": This series focuses on teaching basic grammar rules and the basic structure of the language. It is an ideal option for beginners.

"Turkish First Step" Series: This series focuses on teaching basic grammar rules and the basic structure of the language. It is an ideal option for beginners.

"Here is Turkish!" Series: This series offers practical lessons for Turkish learners and teaches expressions they can use in daily communication.

"Hittite" Series: This series focuses on learning Turkish culture and language at the same time. It offers the opportunity to understand Turkish culture while learning the language (developed by Ankara University TÖMER).

"Turkish Dictionaries: Greek-Turkish or English-Turkish dictionaries can be very useful in the language learning process.

Online Resources: Many language learning platforms offer online courses and resources for language learners. Applications such as Duolingo, Memrise and Babbel are popular for learning Turkish.

The methods used in foreign language teaching are also used in teaching Turkish as a foreign language. These approaches are developed to structure and facilitate the process of teaching and learning a new language to students. Different methods can vary according to the needs and goals of the teacher and the learner. Here are the teaching methods commonly used in teaching Turkish as a foreign language:

Traditional Language Teaching (Grammar-Translation Method): This method emphasizes grammatical rules and vocabulary. Students are taught grammar rules and translated texts. Communication skills are of secondary importance.

Direct Method: In this method, the target language is spoken and students are taught the direct use of the language. Grammar rules are not explained and students practice in the language.

Audio-Lingual Method: This method is based on listening, repeating and imitating the language. Students learn the correct use of the language through repetition.

Communicative Language Teaching: This modern approach emphasizes communication skills. Students are taught language use, practice speaking and listening, and focus on real-world communication.

Learner-Centered Approaches: These approaches encourage students to take control of their own learning process. They offer customized learning experiences based on students' interests and learning styles.

Culture-Based Approaches: These approaches teach language not only as language, but also in the context of culture, history and society. Students are taught that language is part of a culture.

Reverse Learning: This approach focuses on students learning language through real-life experiences. Students are given opportunities to experience the use of language in everyday life.

Game-Based Learning: Games can support language learning in a fun and interactive way. Language learning games can be used to improve vocabulary, grammar and communication skills.

Online and App-Based Learning: With the advancement of technology, online resources and language learning apps have become popular. These platforms offer learners easy access, practice and customized learning experiences.

The methods used in foreign language teaching can vary depending on a number of factors such as students' ages, language levels, goals and learning styles. Teachers consider a variety of factors when choosing the methods that best meet the needs of their students. In addition, many teachers use a combination of different methods to diversify their lessons and help students develop different skills.

Many difficulties can be encountered in teaching Turkish as a foreign language (Kara, 2010). Teaching and learning Turkish in Greece may face certain challenges. These challenges can apply to both students and teachers. Here are some common problems encountered while teaching Turkish in Greece:

Low Demand: The demand for learning Turkish in Greece can be low compared to other common foreign languages. This can limit the number of students and resources.

Insufficient Resources: Limited resources and textbooks available for teaching Turkish can lead to problems in providing teaching materials.

Adequate Number of Teachers: The number of Turkish teachers may be limited. This can make it difficult to deliver Turkish lessons and provide sufficient individual attention to students.

Cultural Differences: Cultural differences between Turkish language learners and teachers can make communication and understanding difficult.

Language Complexity: Since Turkish is a language not similar to Greek, the learning process can be complex, especially in terms of grammar and pronunciation.

Independence and Motivation: Students may need to work independently and be highly motivated when learning a foreign language. Some students may find it difficult to stay motivated.

Language Learning Resources: Limited language learning resources can limit students' ability to develop different skills and use them in daily life.

Lack of Language Exchange Partners: Lack of language exchange partners or opportunities to interact with Turkish-speaking communities can make it difficult for students to develop their language skills.

Examination and Certification Challenges: Certificates of Turkish proficiency may be limited in number and difficult to access.

These issues represent challenges in teaching and learning Turkish. However, these challenges can be overcome by educators and students finding creative solutions, staying motivated and focused on language learning. Factors such as teaching materials, language exchange partners and access to online resources can also facilitate this process.

REFERENCES

European Language Portfolio, 2023. https://www.coe.int/en/web/portfolio (Accessed on 14.08.2023)

Göçer , Ali (2008). T eaching Strategies and Class Practices of theTeachers who Teach Turkish as a Foreign Language (A Qualitative Research). *Journal of Social Sciences, 4* (4), 288-298.

Kara, Mehmet (2010). Gazi Üniversitesi TÖMER Öğrencilerinin Türkçe Öğrenirken Karşılaştıkları Sorunlar ve Bunların Çözümüne Yönelik Önerileri. *Türk Eğitim Bilimleri Dergisi*, *8* (3), 661-696.

Karababa Candaş, Z. Canan (2009). Yabancı Dil Olarak Türkçenin Öğretimi ve Karşılaşılan Sorunlar. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi*, *42* (2), 265-277.

Kaya, Zeki (1994). Başka Ülke İnsanlarına Türkçe Öğreten Kurumlar. *Çağdaş Eğitim, 203*, 16-18.

Schinhardt, Hartwig (1988). Güney-Batı Almanya'da Palatina Bölgesinde Türkçe Öğretimi Nasıl Gerçekleşiyor? *Dil Dergisi, 1*, 92-97.

Uçgun, Duygu (2006). Yabancılara Türkçe Öğretiminde Kelime Dağarcığını Geliştirme Etkinlikleri. *Türklük Bilimi Araştırmaları*, *20*, 217-227.

Ungan, Suat (2006). Avrupa Birliğinin Dil Öğretimine Karşı Tutumu ve Türkçe'nin Yabancı Dil Olarak Öğretilmesi. *Dumlupınar Üniversitesi Sosyal Bilimler Dergisi, 15*, 217-225.

A Study on Speaking Skills in Teaching Turkish as a Foreign Language

Özlem KANAT[1]
Katerina FRANTZI[2]

Introduction

The European Language Portfolio is a tool developed by the Council of Europe to standardize and evaluate language learning and teaching processes. The portfolio provides guidance and framework for assessing four skills (speaking, listening, writing and reading). Here are some key elements for speaking skills in the European Language Portfolio (EU, 2023):

Speaking Skill Explanations:

The European Language Portfolio provides clear targets and expectations for speaking skills at all levels (A1-C2). This gives students some guidance on what level of speaking skills they need to develop.

Speaking Activities:

The portfolio includes various activities and examples that can be used to develop speaking skills. These activities may include role-playing, dialogues, presentations, group discussions, and more.

Speaking Achievements:

The student's speaking ability is defined according to certain levels (for example, A1 to C2) in the portfolio. Students can work to meet these levels.

Self assessment:

The European Language Portfolio provides students with tools to assess their speaking skills. Students have the opportunity to objectively evaluate and develop their own abilities.

Language Portfolio Records:

Students can use their portfolios to record their speaking activities and achievements. This helps the student track their progress and provides reference for future assessments.

Collaboration and Teaching:

The portfolio encourages collaboration between students and teachers. Teachers monitor students' speaking skills and provide guidance as they improve.

The European Language Portfolio aims to make language learning and teaching processes more transparent and accessible. Speaking skill is an important component within this portfolio and offers many resources and tools to help students develop this skill. Students and teachers can use the portfolio to make their language learning and teaching experiences more effective.

The methods and techniques used to teach Turkish as a foreign language may vary depending on the purpose of language teaching, the student group and the learning environment.

[1] Dr. Asst. Prof., Ankara University
[2] Prof. Dr., University of the Aegean

Here are the methods and techniques commonly used in teaching Turkish as a foreign language (Candaş Karabab, 2009):

Tongue Immersion Method:

It creates a learning environment where students are completely exposed to Turkish in their daily lives and lessons.

This method can help students learn languages quickly, but it can be challenging at first.

Communicative Method:

Students are advised to focus on improving their communication skills. Emphasizes practical speaking, listening and writing skills.

Interactive activities such as role playing, dialogues, games and group work are used.

Language Laboratories:

Language laboratories offer students the opportunity to practice listening and speaking. Students can listen to audio recordings and speak themselves.

These labs can be effective for improving pronunciation and speaking skills.

Language Learning Apps and Online Resources:

Language learning apps provide students with an interactive language learning experience. Students can improve their language skills through mobile applications and web-based resources.

These apps can offer vocabulary, grammar and speaking practice.

Some common methods that can be used when assessing speaking skills in the European Language Portfolio are as follows (EU, 2023):

Presentations and Speaking Assignments:

Students are given the opportunity to choose a topic and make a presentation. Students are expected to explain, discuss, or analyze a particular topic. Evaluation may include content of the presentation, organization, pronunciation, speaking rate, and emphasis.

Playing Roles and Monitoring Dialogue:

Students are given specific roles or characters and asked to create dialogues. This is useful for assessing students' real-life communication skills.

Group Discussions:

Students discuss topics and interact with each other in small groups. Evaluation may include level of participation, contributions, receptivity, and listening skills.

Exams:

Speaking exams are structures that require students to speak on specific topics or scenarios. These exams can assess grammar, vocabulary, and speaking skills.

Registration and Self-Assessment:

Students can record their own speaking practice and then evaluate themselves by listening. Self-assessment is useful for improving pronunciation, stress and language use.

Language Portfolio Review:

Language portfolios created jointly by students and teachers can be used to document student progress. The student can review speech samples and progress in their portfolio.

Live Monitoring and Feedback:

Teachers can monitor students' speaking skills live and provide feedback. This gives students the opportunity to make immediate corrections.

Video and Audio Recordings:

Students' conversations can be recorded with video or audio recordings. These recordings can then be reviewed for evaluation and feedback can be given to students.

Language Exchange and Real Life Applications:

Students can improve their speaking skills by participating in Turkish-speaking environments in their daily lives or by practicing in real life.

Speaking skill assessment aims to measure the student's ability to use the auditory and verbal aspects of language effectively. Assessment methods may differ depending on the student's level, learning goals, and teaching purposes. Some common mistakes made by those who learn Turkish as a foreign language in speaking skills during the 2021-2022 Turkish courses given at the Aegean University in Greece can be listed as follows:

Vocabulary and Pronunciation Errors:

Wrong word choice: Foreigners may have difficulty choosing words due to the richness of words in Turkish and may use the wrong terms.

Mispronunciation: Some sounds and stresses can be difficult for foreigners, causing them to mispronounce words or phrases.

Meaning Confusions:

Different interpretation of structures: Some Turkish structures may have more than one meaning for foreigners, and this may lead to confusion.

Use of Intralingual Expressions:

Misuse of formulaic expressions: Foreigners may misunderstand or use common expressions or idioms in Turkish.

Use of mound: Incorrect use of the words "you" and "you" used to show respect when speaking Turkish may indicate a lack of cultural understanding.

Language and Cultural Differences:

Differences in body language: Foreigners may misinterpret body language signs accepted in Turkish culture.

Etiquette and courtesy rules: Etiquette and courtesy rules vary in Turkish, and foreigners may have difficulty understanding and applying these rules.

Gender and Kinship Terms in Turkish: Gender identification and kin terms can be complicated for outsiders and cause errors.

Visual and Audio Aids:

Visual aids can help students understand words and sentences. Colorful images, infographics, and visual cards can be useful.

Auditory aids teach students correct pronunciation and help develop the auditory aspect of the language.

Language Exchanges and Polish Learning:

Learning different dialects and dialects of Turkish can help students be exposed to different styles of speaking.

This can provide students with the ability to understand Turkish in a broader range.

Cultural Sensitivity:

Knowledge of Turkish culture and traditions can help you use Turkish more effectively. This provides students with the opportunity to understand the cultural context of the language.

Teacher Guidance:

Qualified teachers guide students to learn Turkish. A good teacher is important in lesson planning, student evaluation, and providing feedback.

Some common mistakes made while trying to improve speaking skills in foreign language teaching may be (Göçer, 2008; Kara, 2010):

Limiting Speaking Opportunities: If teachers do not give students sufficient speaking opportunities in the classroom, students may have difficulty developing their speaking skills.

Lack of Focus on Speaking: A large portion of language lessons may focus on writing and grammar rules, and speaking practice may be lacking. This can undermine students' ability to communicate in the real world.

Not Encouraging Students to Speak: Some students may miss opportunities to speak due to shyness or insecurity. It is important that teachers encourage students to actively talk.

Monotonous Lessons: Constantly continuing the lessons in the same format or in a monotonous manner can reduce students' motivation. It is important to keep lessons lively and interesting by using a variety of teaching methods.

Pronunciation Violations: Teaching students correct pronunciation is critical to improving intelligibility in communication. Teachers need to focus on correcting pronunciation errors and teaching correct pronunciation.

Lack of Adequate Preparation and Resources: If teachers are unprepared or have insufficient resources for materials and activities to practice speaking, it can be difficult for students to improve their speaking skills.

Ignoring Language Variations and Real World Applications: Teaching students only the language they have learned formally or from textbooks can mean ignoring real-world language variations and applications.

Ignoring Student Needs: Every student has different learning speeds and needs. It is important for teachers to customize lessons by taking into account students' individual needs and goals.

Incorrect Feedback: When teachers fail to give students constructive feedback or address mistakes critically, it can negatively impact student motivation.

Unrealistic Speaking Expectations: When teachers set unrealistic speaking expectations for students, it can create pressure on students and negatively impact the learning process.

While foreign language teaching focuses on speaking skills, it is important to avoid these mistakes and encourage students to practice speaking effectively. Giving students the opportunity to express themselves comfortably in real-world communication can help them improve their speaking skills.

REFERENCES

European Language Portfolio, 2023.   https://www.coe.int/en/web/portfolio (Accessed on 14.08.2023)

Göçer , Ali (2008). T eaching Strategies and Class Practices of theTeachers who Teach Turkish as a Foreign Language (A Qualitative Research). *Journal of Social Sciences, 4* (4), 288-298.

Kara, Mehmet (2010). Gazi Üniversitesi TÖMER Öğrencilerinin Türkçe Öğrenirken Karşılaştıkları Sorunlar ve Bunların Çözümüne Yönelik Önerileri. *Türk Eğitim Bilimleri Dergisi*, *8* (3), 661-696.

Karababa Candaş, Z. Canan (2009). Yabancı Dil Olarak Türkçenin Öğretimi ve Karşılaşılan Sorunlar. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi*, *42* (2), 265-277.

Kaya, Zeki (1994). Başka Ülke İnsanlarına Türkçe Öğreten Kurumlar. *Çağdaş Eğitim, 203*, 16-18.

Schinhardt, Hartwig (1988). Güney-Batı Almanya'da Palatina Bölgesinde Türkçe Öğretimi Nasıl Gerçekleşiyor? *Dil Dergisi, 1*, 92-97.

Uçgun, Duygu (2006). Yabancılara Türkçe Öğretiminde Kelime Dağarcığını Geliştirme Etkinlikleri. *Türklük Bilimi Araştırmaları*, *20*, 217-227.

Ungan, Suat (2006). Avrupa Birliğinin Dil Öğretimine Karşı Tutumu ve Türkçe'nin Yabancı Dil Olarak Öğretilmesi. *Dumlupınar Üniversitesi Sosyal Bilimler Dergisi, 15*, 217-225.

Current Debates in
Social Sciences

15