Academic Studies and New Visions in Social, Human, and Administrative Sciences

Editor: Prof. Dr. Şahinde YAVUZ

DUVAR

ACADEMIC STUDIES AND NEW VISIONS IN SOCIAL, HUMAN, AND ADMINISTRATIVE SCIENCES

Editor

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Chapter 1

Large-Scale Firms' Market Entry Decisions in Manufacturing Industry

Gülçin GÜREL GÜNAL[1]

Introduction

The industrial sector is accepted as the engine of growth for most countries, and within the industrial sector, manufacturing has an important place. This is because the manufacturing industry includes leading firms with the power to develop technology. In this way, the country's potential for innovation and technological development increases, trade values rise, and international competitiveness reaches a better level. In this context, the quality and quantity of firms operating in manufacturing are very important. A manufacturing industry with a high number of firms demonstrates great strength in moving the country forward. However, what is mainly expected is that these firms should have a high capacity for creating technology. It is generally seen that the firms capable of creating technology are large-scale firms. For this reason, it is necessary to conduct studies that examine the decisions of large-scale firms.

When manufacturing in Türkiye is examined, according to TÜİK (2024), 477,900 firms are actively operating. Approximately 99% of this number consists of SMEs (small and medium-sized enterprises). This means that the number of large-scale firms operating in manufacturing is only 2,494. This result is based on a classification determined by the number of employees, which accepts firms with fewer than 250 employees as SMEs. However, in 2025, a new classification based on annual net sales was developed by KOSGEB. According to this classification, SMEs operating in manufacturing constitute 95% of the total number of firms. As a result, while SMEs, which account for more than 95%, remain limited in developing technology, large-scale firms with the capacity to create technology remain very few in number. Nevertheless, an increase in the number of large-scale firms in manufacturing is expected for sustainable growth. Therefore, it is necessary to identify the factors affecting the market entry of such firms and to develop policies directed toward these factors. In this study, the factors affecting the market entry of

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firms operating in Turkish manufacturing are identified by using the logistic regression method. The study is based on Bain's (1951) model of barriers to entry.

Barriers to entry are important for all economic actors. Although consumers are not directly affected by barriers to entry, they are involved in this process through prices, the diversity of goods and services, and access to quality products. In the short run, a structure in which many firms operate, supply increases accordingly, the price level declines, and the variety of goods and services is high is preferable for consumers. Therefore, consumers prefer barriers to entry to be weak. However, in the long run, the existence of a small number of large-scale firms with a high capacity for technology creation, which is expected to result from strong entry barriers, will also increase consumer welfare. Through these firms, consumers will gain access to higher-quality products. These developments on the consumer side show that it is necessary to create a sector-specific structure and, accordingly, design different policies. On the other hand, producers (firms) are directly affected by barriers to entry. A firm with the motivation to enter the market (a potential firm) analyzes the existing situation within the framework of barriers to entry and makes its decision. In this case, the potential firm expects to encounter low entry barriers. Otherwise, high costs and, as a result, low performance in growth will occur. Existing firms, on the other hand, prefer high barriers to entry. In this way, they are expected to continue holding the opportunity of economies of scale, experience positive values in profits, and face a weaker need for competitive behavior. As a result, whether barriers to entry are hard or soft varies both according to different economic actors and according to conditions and expectations. At this point, the decision depends on government policies. Within the framework of government policies, barriers to entry are expected to protect incumbent firms and, while doing so, shape the competitive structure according to sectoral characteristics. A government that wants to make the market more competitive chooses practices that motivate market entry, whereas a government that wants to reduce competition chooses practices that make market entry more difficult. For example, in sectors where competition increases social welfare, entry into the sector is encouraged, and at this point small and medium-sized firms are needed. On the other hand, Türkiye, in particular, has a high share in the export of low- and medium-technology products. For this reason, these sectors should also be given importance. This may create a need for policies that increase the number of firms in these sectors. In addition, firms producing high-technology products with strong international competitiveness may also be offered supports that motivate these firms by taking their behavior in the sector into account. In short, governments should determine, for social welfare, how many firms each sector needs and at what level. Accordingly, they should implement policies that motivate or discourage firms at the point of market entry.

It is seen that it is necessary to analyze the factors affecting market entry that are taken into consideration both by firms and by the government. From this point of view, this study aims to identify the factors affecting the entry of large-scale firms into manufacturing for the 2009–2022 period.

Literature

Market entry is one of the important elements of the structure-conduct-performance paradigm under industrial organization theory. As an important market behavior, market entry has the power to affect both market structure and market performance. For this reason, various studies are encountered on this subject. Bain (1951) appears as the pioneering study. This study, which addressed the issue within the framework of barriers to entry, stated that product differentiation, high costs, and market scale would create important barriers to market entry. Modigliani (1958) and Sylos-Labini (1962) deepened this field by conducting theoretical studies on the factors affecting market entry.

Empirical studies analyzing the factors affecting market entry emerged in the 1970s. In this context, Orr (1974) used Bain's perspective on barriers to entry for Canadian manufacturing. He revealed that profitability and the market growth rate are the main motivations for market entry, while advertising expenditures and market concentration constitute barriers to entry. Duetsch (1984), taking Orr's model into account and later expanding it, analyzed the factors affecting market entry for U.S. manufacturing. In that study, while the market growth rate emerged as an important motivating factor, advertising expenditures and market concentration were found not to be effective barriers. This result showed that cross-country differences create different barriers to market entry. Shapiro and Khemani (1987) also extended Orr's (1974) model and carried out their analysis for Canada. This study, which found profitability and the market growth rate to be effective factors in market entry, presented results supporting Orr (1974). Jenny and Weber (1978), on the other hand, conducted a similar study for France. It was determined that the main factor affecting market entry was the level of market concentration. Austin and Rosenbaum (1990), Rosenbaum (1992), and Rosenbaum (1993) discussed motivations and barriers to market entry in their studies by examining firm- and sector-specific variables. In all studies, profitability as a firm indicator and market concentration as a sector indicator were identified as common factors affecting market entry. In addition, until the 2000s, the studies of Martin (1979), Farber (1981), Demsetz (1982), Coate and Uri (1986), Audretsch (1995), Olley and Pakes (1992), Ilmakunnas and Topi (1999), and Ratnayake (1999) also contributed to the market entry literature from different theoretical and empirical perspectives.

In the post-2000 period, analyses for different country cases, different sectors, and different time periods are encountered. Various studies by Bhattacharya and Bloch (2000), Delorme et al. (2002), Symeonidis (2003), Roberts and Thompson (2003), Arauzo-Carod and Segarra-Blasco (2005), Lira, Rivero, and Vergara (2005), Bos and Suhaila (2006), Forte and Sarmento (2014), Genchev (2015), and Niekerk (2018) examine barriers to entry in manufacturing for France, New Zealand, Australia, Malaysia, the USA, Portugal, and South Africa. When all studies are examined, market scale, the level of market concentration, and profitability, as well as the market's growth potential, foreign capital inflows, increases in capital intensity, growth in imports, increases in advertising activities, sunk costs, and increases in research and development activities, emerge as important factors in market entry.

Roh (2018) is known as a study that tries to bring a different direction to the literature. In addition to firm- and sector-specific variables, the study also includes macroeconomic indicators in the market entry model. The model makes a comparative analysis for Canada and the USA. Five industries in each country are evaluated separately. According to the findings, the macroeconomic indicators considered differ for the two countries. While unemployment and growth stand out for the USA, real GDP and the interest rate emerge as the main macroeconomic variables affecting market entry for Canada. Cala (2018) similarly creates a distinction in the literature. The reason is that the study conducts the analysis for Argentina by taking firms' different technology levels into account. The results reflect that firms operating at different technology levels are affected by different factors, while the poverty level and the market's growth potential appear as the main factors.

There are also studies conducted for Türkiye on the analysis of the factors affecting market entry. Kaya and Üçdoğruk (2002) analyzed the factors affecting firms' entry into Turkish manufacturing for the 1981–1997 period. In the model, where the number of firm entries was accepted as the dependent variable, profitability, the market concentration ratio, advertising expenditures, productivity, the market growth rate, and average wages were included as independent variables. The findings revealed that firms in this period were most affected by the level of profitability, the level of market concentration, and the market growth rate. Similar studies, Cilasun and Günalp (2002) and Günalp and Cilasun (2006), examined the factors affecting entry into Turkish manufacturing for 1993–1999 by using the GMM method and panel data analysis. In this study, where the share of the number of entering firms in the total number of firms was accepted as the dependent variable, the lagged entry rate, the average size of large-scale firms, the ratio of depreciation to the average number of workers, the share of advertising expenditures in total

output, the share of the profit level in total sales, the industry growth rate, the concentration ratio, the ratio of machine rentals to capital, the share of exports in total production, and the share of the number of exiting firms in total firms were added to the model as independent variables. Another study using the same dependent variable was conducted by Öztürk and Kılıç (2012) for the years 1995–2001 by using the Tobit method. With a similar period, this study also used the market growth rate, concentration ratio, profitability, exports, imports, inflation, productivity, and the share of investments in fixed capital. In the findings of these two studies, where the dependent variable was the same and the independent variables were similar, the only common result was the profitability variable. On the other hand, Cilasun and Günalp (2002) defined the lagged entry rate, the size of large-scale firms, the industry growth rate, and the concentration ratio as determinants of market entry, whereas Öztürk and Kılıç (2012) found productivity, inflation, exports, and imports to be effective in market entry. This showed that methodological differences may also change the findings. In addition, Öztürk and Dietrich (2012) conducted another similar study for 1995–2001. In this study, too, the share of the number of entering firms in the total number of firms was accepted as the dependent variable. The main difference of the study was identified in terms of the independent variables, method, and research question. In this study, which preferred the SUR method, the variables of profitability, the market growth rate, agglomeration, productivity, and the share of investments in fixed capital were used, and the relationship between firms' market entry and exit decisions was examined. As a result, findings were reached showing that only the market growth rate was effective in firms' market entry and exit decisions. Günalp (2011) also examined the factors affecting entry into manufacturing for the same period, 1996–2001, by panel data analysis. The dependent variable was the number of firm entries, while the independent variables were accepted as firms' lagged market entry rates, lagged exit rates, lagged profitability rate, industry growth rate, advertising expenditures, and R&D expenditures. The findings revealed that profitability and the industry growth rate were effective in market entry. Another analysis for the 1996–2001 period was carried out by İzgi and Dineri (2014). In the study using the GMM method, it was concluded that the market growth rate and exports positively affect market entry. A similar study for the 1993–1999 period was also conducted by Turanlı and Kılıç (2009). Unlike the other studies, this study also included macroeconomic indicators in the model and stated that imports, exports, inflation, real interest rates, and GDP values under macroeconomic indicators are the main determinants of market entry. As a result, it was determined that firms between 1990 and 2000 were generally affected by the market concentration ratio, the market's growth potential, and export values.

It has been observed that the factors affecting firms' entry into Turkish manufacturing have been examined in a limited number of studies for the post-2000 period. In Erdoğan's (2012) study, where firm mergers, one of the methods of market entry, were accepted as the dependent variable, an analysis was conducted for 2004–2010 by using the Cox regression method for 500 firms listed on the Istanbul Stock Exchange. It was determined that profitability, exports, and the firm's level of indebtedness affect firm mergers and are thus important variables in market entry. Günal and Deliktaş (2020) examined the factors affecting entry into manufacturing by taking into account the distinction between high- and low-technology firms. In this study, which used the logistic regression model for the 2003–2015 period, it was observed that high- and low-technology firms are affected by different motivations in market entry. However, in both models, the market concentration ratio and inflation were stated as common variables affecting market entry.

When all studies are examined, it appears that, although they vary from country to country, sector to sector, and analysis period to analysis period, firm- and sector-specific variables such as cost, profitability, scale, the competitive power of the product, equity size, productivity, the growth potential of the sector, and the level of concentration, as well as important macroeconomic indicators such as inflation, growth, foreign trade volume, technological developments, democratic structure, the strength of law, product demand, crises, and R&D supports, are effective in the market entry decision. However, for Türkiye, it is seen that the factors effective in entry into manufacturing have not been clearly revealed for the post-2000 period, and in the limited number of studies analyzing market entry, technological differences and firm sizes have not been taken into account to date. For all these reasons, it is thought that this study, conducted specifically for large-scale firms within Turkish manufacturing, will fill an important gap in the literature.

Market Entry Motivation in Large-Scale Manufacturing Firms

Market entry is defined as the entry of new firms into the market in response to various sources of motivation, especially increasing profitability (Adams et al., 2016). Market entry may occur directly, as a firm begins operations in a market, or indirectly, as a result of merger transactions with a firm operating in the market. A merger can be defined as the gathering of all active and passive items of one firm with one or more firms under a common structure, and the legal administration of this structure by a continuing or newly established firm (Turkish Commercial Code, Article 146). However, a merger can basically occur in two different ways: through acquisition or through the gathering of two or more firms under a single new structure (Yücebaş, 2005). There are various factors affecting the market entry decision, which may occur directly or indirectly. These factors were first analyzed

by Bain (1951) through the barriers to entry approach in terms of cost, product differentiation, and scale; over time, as a result of developments and the changing world, new factors were also incorporated into the models.

There are 24 sub-sectors within manufacturing in Türkiye. Within each sector, there are firms of different sizes, namely small, medium, and large scale. This means that, even if they are in the same sector, each firm actually has a different structure. A different structure means that firms take part in the market with different motivations. Because although the general objective of firms is profit maximization, the purpose of entering the sector may differ among firms of different sizes. Therefore, it is necessary to evaluate the issue by taking scale differences into account and to produce policies suitable for the characteristics of each sector. Policymakers also follow these motivational factors within this framework

The aim of this study is to analyze the factors affecting firms' market entry decisions in Turkish manufacturing, based on Bain's (1951) approach, specifically for large-scale firms. In this context, the model developed in the study includes firm- and sector-specific variables and macroeconomic indicators. In accordance with the purpose of the study, the main hypothesis is that large-scale firms operating in Turkish manufacturing are affected not only by firm- and sector-specific variables but also by macroeconomic indicators in market entry. To test this hypothesis, the logistic regression method is used and the factors affecting firms' market entry decisions are revealed.

Data and Method

The model used within the scope of the study is based on the market entry model. Only direct market entries are taken into account as market entry. Therefore, a dummy variable representing market entry is used as the dependent variable. The dummy variable is constructed by looking at the change in the number of firms. A value of 1 is assigned for a positive year-to-year change in the number of firms, and a value of 0 is assigned for negative change and for no change.

Since the dependent variable is a dummy variable (taking a value of either 1 or 0), logistic regression is used as the method of analysis. The logistic regression model reveals the effect of changes in the independent variables on the dependent variable through probability values (Akay, 2015). The independent variables in the logistic regression model also consist of discrete and continuous values. The general functional structure of the logistic regression model is given below (Greene, 2000).

$$P_i = E\,(Y_i = 1 \,/\, X_i\,) = \frac{1}{1+e^{-(ß_1 + ß_2\, X_i)}}$$

These models provide the probability distribution of the values that the dependent variable may take as predictions. In the above equation, “Pi” can only take values between 0 and 1, which leads to the result that there is no linear relationship between P and Y. Therefore, the least squares method cannot be used and the logistic regression method is preferred, because logistic regression is estimated by the maximum likelihood method (MLE).

There are some points that should be considered in logistic regression. The most important of these is to conduct correlation analysis for the problem of multicollinearity among the independent variables. In addition, attention should be paid to the problem of separation so that the MLE is not biased. After estimation with the logistic regression method, model fit and significance tests such as the Wald test, Log-Likelihood test, Pseudo R2, and the Hosmer–Lemeshow goodness-of-fit test are also expected to be carried out (Wooldridge, 2010; Hosmer, Lemeshow, and Sturdivant, 2013).

In line with the aim of the study, the set of variables to be used in the model is formed by taking Bain’s (1951) approach into account. In this context, firm- and sector-specific variables and macroeconomic indicators are preferred in the model as alternative variables, with costs and scale variables, which are the starting point of Bain (1951), as the basis. In addition, although there are 24 sub-sectors in manufacturing within the scope of NACE Rev.2, sectors no. 12 and 19 could not be included in the analysis due to data deficiencies.

Table 1. Information on the Data

Variable Type	Varible Name	Explanation
Dependent Variable	Y	Change in the number of firms (dummy variable)
Independent Variables Firm and Market Specific (lagged values)	W_1	Personnel Cost
	W_2	Total Procurement of Goods and Services
	Profit	(Value Added-Payments Made to Employees)/Sales
	Productivity	Production/Employment
	Scale	Log Total Production
	Market Growth	Market Growth (Production Value)
Independent Variables Macro Economic Indicators (lagged values)	Demand	Change in Population
	R&D	R&D by Firms
	Inf	Inflation
	Efi	Economic Freedom Index
	Growth	GDP growth rates
	X	Export Volume
	M	Import Volume
	T	Trend

Source: Prepared by the author.

As seen in Table 1, a dummy variable is used in the model as the dependent variable by considering the change in the number of firms. Personnel costs, goods and services procurement costs, profit, productivity, market scale, and the market growth rate are taken into account as variables representing firm- and sector-specific characteristics. As macroeconomic indicators, demand, technology, inflation, the economic freedom index, the country's growth values, and import and export figures are used. However, as a result of the correlation analysis, productivity and import values, which were expected to create a multicollinearity problem, were removed from the model.

Population, growth, and inflation data were obtained from the World Bank, the economic freedom index from heritage.org, and all other data from TÜİK.

Findings

The study aims to reveal the main factors affecting the decisions of large-scale firms entering manufacturing in Türkiye for the years 2009–2022. In line with this objective, estimations are made for the model by using the logistic regression method. In this analysis, where firm- and sector-specific variables and macroeconomic indicators are taken into account, the results are summarized in Table 2. Model 1 in Table 2 presents the result of a simple model including only firm- and sector-specific variables. Model 2 is accepted as the extended model, in which macroeconomic indicators are included. The values in this table are odds values, and the signs shown before the values represent the sign of the coefficient obtained from the estimation. In other words, the signs in the table show the direction of the relationship between the variables. The significance level for each variable is indicated by the stars on the odds value.

Table 2. Lojistic Regression Results

Lagged Data	Model 1	Model 2
W_1	(-)0.38**	(-)0.35*
W_2	(+)3.52**	(+)2.78*
Profit	(+)8.59	(+)6.22
Scale	(-)0.81	(-)0.84
Market Growth	(+)1.08	(+)1.20*
Demand		(-)0.03***
Growth		(+)3.33**
R&D		(+)3.71**
Efi		(-)0.12*
Inf		(-)0.62*
X		(+)6.39**
Trend		(+)0.05**
Constant	0.00	(+)0.00
Obs.	158	158
Log_like	-80.41	-48.02

The values are Odds Ratios. The signs before the Odds Ratios are coefficient signs and indicate the direction of the relationship.

Model fit tests are given in Appendix 2. Model fit tests indicate the reliability of the model.

According to the Log-likelihood values given in Table 2, Model 2 appears to be more compatible. This is because the higher this value is, that is, the less negative it

is, the better the model fits the data. Therefore, the findings will generally be evaluated within the framework of Model 2. When we evaluate the findings one by one, both cost variables produce significant results. Personnel costs, accepted as firm-specific variables, are accepted as a barrier to entry, whereas the procurement of goods and services positively affects firms' market entry. It is thought that the reason why the procurement of goods and services motivates firms is that this cost indicates a strong production and supply chain structure in the sector. Market growth, which represents the sector, is positive and significant. This shows that large-scale firms want to enter growing markets. On the other hand, profitability and scale size, which are accepted as the main motivations for entry in many studies, are not found to be significant for large-scale firms operating in Turkish manufacturing.

Large-scale firms follow macroeconomic indicators more closely. For example, the demand variable is significant. However, surprisingly, this variable is accepted as a barrier to entry. It is thought that the negative effect arises because the variable used as the demand indicator is based on population. Because for large firms, the general population alone is not accepted as an influential signal. Such firms tend to focus more on international demand than on domestic consumer demand. High domestic demand causes large-scale firms to create a different production structure by deviating from their objectives. This makes the negative effect of this variable less surprising. In addition, the growth rate, R&D, and export volume are seen as variables with significant and positive effects. Since large-scale firms require higher fixed investment, they find it safer to enter the market in a macroeconomic growth environment. The effect of R&D indicates that the market entry decision of large-scale firms will be positively affected when the sector has a high capacity for technology creation. The export result shows that large-scale firms are sensitive not only to the domestic market but also to external market connections and international competition. On the other hand, the economic freedom index and inflation, accepted as indicators of stability, are identified as barriers to entry. Although the result for the economic freedom index is surprising, it suggests that in Türkiye large firms focus more on specific incentives and similar material conditions than on the general structure of freedom in their market entry decisions. Inflation, on the other hand, is an important market barrier, and high inflation creates an environment of high uncertainty and risk.

As a result, when we interpret the model in general, personnel costs and inflation are identified as the main barriers to entry for large-scale firms. On the other hand, total procurement of goods and services, market growth, national growth, technological developments, and positive developments in export volume are accepted as factors encouraging entry. According to the findings, the hypothesis of the study is confirmed. That is, large-scale firms operating in Turkish manufacturing

are affected not only by firm- and sector-specific variables but also by macroeconomic indicators in market entry.

Results

Manufacturing, especially through the added value it creates for large-scale firms, its potential to create innovation, its power to develop technology, and the productivity increase it can generate accordingly, has the power to raise production to high levels both in itself and in other sectors. Because of these characteristics, countries want new firms to enter manufacturing and for the sector to grow. This study also aims to reveal, specifically for large-scale firms, the main motivations behind firm entry into Turkish manufacturing. The models developed in line with the aim of the study are based on Bain's (1951) barriers to entry approach under industrial organization theory. In line with the aim of the study, the analysis is carried out by using the logistic regression method for the years 2009–2022. Since approximately 95% of the firms operating in manufacturing are SMEs, the results obtained in studies that take all firms into account will not be effective for large-scale firms. Therefore, this study, which takes into account 22 sub-sectors of manufacturing (NACE Rev.2), aims to provide a roadmap for policymakers by revealing which factors affect the market entry of large-scale firms.

The findings obtained within the scope of the study confirm the hypothesis of the study. Large-scale firms are affected not only by firm- and market-specific variables but also by macroeconomic indicators. In fact, one of the main findings of the study is that firms with these characteristics take macroeconomic indicators into account more than other variables.

These firms are particularly more reluctant to enter the market in an environment of high cost and uncertainty, whereas growing markets, innovation capacity, and export opportunities encourage their entry. Therefore, it is expected that policies reducing especially personnel-related costs should be designed. In particular, providing incentives for the employment of qualified labor could soften the response of large-scale firms to the cost effect. On the other hand, the findings indicate that increasing R&D incentives, technology investments, university–industry cooperation, and digital transformation supports may be effective in motivating firm entry. The positive effect of export volume also indicates that export incentives, logistics infrastructure investments, programs facilitating access to foreign markets, and policies increasing integration into global value chains are necessary. Finally, the variable that needs to be explained is inflation. Inflation symbolizes price stability, in other words, macroeconomic stability. For firms, this basically means the potential for investments to come. Since inflation is a barrier to market entry, the government is expected to develop policies that will strengthen the investment

environment. As can be seen, market entry decisions in Turkish manufacturing may differ according to firm scale. Therefore, effective industrial and competition policies can only be developed with targeted policy instruments that take scale differences into account.

As a result, this study is important not only for enterprises but also for governments. Because more importance in the international arena should be given to large-scale firms in order to gain a large share from international competition. It is important to reveal the basic motivations of the enterprises in this sector, to develop policies suitable for them, and to create a suitable environment.

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Appendix 1: Model Fit and Reliability Tests – Large-Scale Firms

Model	Pseudo R^2	Doğruluk (cut=0.5)	AUC	HL χ^2	HL sd	HL p
1	0.150	0.778	0.767	5.679	8	0.683
2	0.195	0.794	0.795	5.526	8	0.700

Chapter 2

Wearable Technologies and Applications in Tourism

Hasan KÖŞKER[1]

Abstract

In this study, the role of wearable technologies in the tourism sector is examined with reference to their historical development, classification, and contributions to the tourist experience. Wearable technologies are defined as intelligent systems that integrate into individuals' everyday lives through a range of hardware such as smartwatches, wristbands, smart glasses, headphones, and sensor-based devices enabling access to information and the collection of data. The ongoing miniaturization and personalization of technology have accelerated the adoption of these devices and generated significant advantages in areas including health, safety, location tracking, interactive content delivery, and experience personalization. Within the tourism industry, wearable technologies support digital transformation through smart tour-guiding solutions, augmented and virtual reality applications, and innovations in accommodation services and destination management, thereby providing visitors with safer, more interactive, and more personalized experiences. GPS-enabled devices, biometric sensors, and mobile-connected solutions optimize tourists' navigation, health monitoring, and information-access processes. Overall, wearable technologies have become a strategic instrument in contemporary tourism, not only facilitating information transfer but also shaping experience-oriented travel, enhancing service quality, and increasing tourist satisfaction.

Keywords: wearable technology; tourism; digital transformation; smart technologies; tourist experience.

Introduction

Humanity has undergone a continuous process of change and development throughout history. This trajectory has involved a transition from primitive forms of life to agrarian societies, from agrarian societies to industrial societies, and from industrial societies to a technology-driven era (Çalımlı, 2019). Since the 2000s, the widespread diffusion of computers and the internet has ushered

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societies into a period of digital transformation, giving rise to an innovation-oriented age in which novelty and technological advancements have become increasingly prominent (Kose et al., 2024). Today, technology has become an indispensable component of everyday life. With digitalization, substantial progress has been achieved in information and technological domains, and, in parallel, the scope of technological devices in daily life has expanded. Consequently, technology has evolved into a fundamental instrument that reshapes individuals' lifestyles and facilitates activities across multiple domains (Chau et al., 2019). Societies and individuals who, until recently, were unfamiliar with information technologies have become active users of these tools. In an increasingly globalized world, there are now very few sectors or organizations that do not benefit from technology (Karataş & Babür, 2013).

In contemporary business environments, next-generation technological developments such as robots integrated into everyday life, 3D printers, the Internet of Things, artificial intelligence, augmented reality, and cloud-based systems enable organizations to achieve technological superiority over their competitors (Hazarhun & Yılmaz, 2020). As a novel manifestation of digitalization, wearable Technologies also referred to as wearable devices are increasingly employed to enhance speed in production and service processes, improve quality standards, strengthen customer satisfaction, and foster harmonious interaction within the workplace (Alp & Doğan, 2021).

Wearable technologies, whose range of applications is expanding rapidly, have become an indispensable component of everyday life for many individuals. Beyond serving as productivity tools, these technologies also carry fashion and aesthetic value and therefore occupy a significant position within the consumer electronics market. Owing to their advantages in mobility and usability, wearable devices support digital transformation and enable tasks that previously required substantial time to be completed more efficiently across numerous sectors, including healthcare, education, and tourism (Bölen, 2017). The wearable technology market, which is widely utilized in areas such as health, education, and tourism, continues to grow steadily (Statista, 2024). The global wearable technology market, valued at USD 32.68 billion in 2019 (Lee, 2025), reached USD 84.2 billion in 2024 and USD 98.47 billion in 2025; it is projected to expand at a compound annual growth rate of 13.6% from 2025 to 2030, reaching USD 186.14 billion by 2030 (Wearable Technology Market Size/Industry Report, 2030). According to forecasts by the market research company Euromonitor, wearable technologies are expected to become the world's best-selling consumer electronics category after smartphones (Karaca, 2022).

This study addresses the historical development of wearable technologies, their definition and core characteristics, their main types and application areas, the relationship between digital transformation and wearable technologies, the impact of wearable technologies on the tourism sector, and their contribution to tourist experiences.

1. History of Wearable Technologies

Throughout human history, technology has continuously evolved, with more functional, faster, and more portable innovations replacing earlier tools in each era. In this progression, advances in information and communication technologies have driven a transformation extending from large-scale computers to smart devices that fit into the palm of one's hand. This process of technological miniaturization and personalization has paved the way for the emergence of wearable Technologies whose origins date back centuries, yet which have gained a prominent place in everyday life in recent years (Bölen, 2017). By facilitating access to information and enabling seamless integration into individuals' routines, wearable technologies have become emblematic of innovation and connected living in today's digital age.

Table 1. Historical Development of Wearable Technology

Year	Chronological Timeline of Developments
1286	Glasses were invented and introduced into use to support visual ability.
1505-1510	The earliest wearable, portable watches-known as the "Nuremberg Eggs"-began to be used.
1644	The abacus ring invented by Cheng Dawei provided merchants with a practical means of calculation.
1884	The illuminated dresses used in the "Electric Girls" ballet performance served as an example of the artistic applications of wearable technology.
1907	Julius Neubronner developed the first lightweight, wearable camera.
1955-1961	Edward O. Thorp and Claude Shannon designed and developed a shoe-based timing device to gain an advantage in games.
1975	The first calculator watch was introduced to the market.
1977	A head-mounted camera and tactile vest system developed for individuals with disabilities facilitated user interaction.
1979	Sony launched the portable cassette player, the Walkman.
1981	Steve Mann developed a backpack-form computer with multimedia, image, and text functionalities, incorporating a camera mounted on a helmet.
1987	Nicolet Corporation launched Phoenix, the first commercial digital hearing aid.
1994	Mike Rucci and Edgar Matias developed the first wrist-worn computer. In the same year, Flynn and Lamming introduced the "Forget-Me-Not" system, which continuously recorded human–computer interaction.

1999	BlackBerry 850 was released as one of the first wireless devices enabling corporate email access.
2000	A sensor-enabled smart ring was developed for health monitoring.
2002	Nokia introduced its first Bluetooth headset.
2004	Microsoft developed the first connected smartwatch using SPOT technology.
2006	The shoe-based fitness system developed through the Nike-Apple collaboration enabled users to track speed, distance, and calories.
2012	Google Glass was introduced as a voice- and gesture-controlled smart eyewear device.
2016	Oculus Rift, launched as a virtual reality headset, transformed gaming and entertainment experiences.
2020	Mojo Vision produced smart contact lenses with augmented reality functionality.
2023	Apple introduced an augmented reality eyewear device designed to operate in sync with the iPhone.
2024	Samsung added a sleep apnea detection feature to the Galaxy Watch series. Oura expanded stress-tracking capabilities through new stress-focused metrics and features supported by its sensing and analytics stack. AI-enabled analytics and recommendation functions in wearables became increasingly prominent for interpreting user data and delivering personalized feedback. Nanophotonic sensor technologies have been advanced as a pathway toward non-invasive glucose measurement integrated into wearable devices.
2025	Helios 2.0 was introduced as an ultra-low-power wearable system incorporating hand-gesture recognition algorithms optimized for event-sensor-based wearables. Meta introduced the Meta Ray-Ban Display smart glasses, featuring in-lens display technology controlled via an EMG wristband interface. Android XR was announced as an extended reality operating system designed to support XR devices (headsets and glasses), with device support positioned to expand across the ecosystem.

Source : Ometov vd., 2021; Yıldız, 2023; Wearable, 2024; Liu vd.,, 2025.

Table 1 presents the chronological evolution of wearable technologies. A review of the historical trajectory indicates that the emergence and diffusion of these technologies have been enabled by the convergence of societal needs, scientific advances, and technological progress. Overall, the table suggests that wearable technologies should be understood not merely as technical inventions, but as a multi-layered field shaped by social demands, aesthetic considerations, scientific curiosity, and broader processes of digital transformation. Moreover, in the context of human-machine interaction, personalized data management, and digitalization, wearable technologies can be regarded as a concrete manifestation of the information society paradigm characterizing the twenty-first century.

2. Wearable Technology and Core Characteristics

Wearable technologies, which are defined in various ways in the literature, are commonly referred to using terms such as wearable computers, smart clothing, smart devices, and smart materials (Kılıç, 2017). The shared denominator across these terms is that such technologies simultaneously possess technical attributes such as computer hardware and software and feature designs that can be directly integrated with the human body (Jhajharia, Pal & Verma, 2014). Accordingly, wearable technologies are not merely hardware products; rather, they are increasingly conceptualized as intelligent information systems that are embodied and integrated with the user.

In line with this technical and bodily integration, wearable technologies may be defined as functional and portable systems developed to facilitate users' daily lives, enhance productivity, monitor health and environment-related data, strengthen communication, and deliver a range of services in real time (Tom Dieck, Jung & Tom Dieck, 2018). These devices operate in synchrony with individuals' physical movements. In doing so, they continuously generate data regarding lifestyle patterns, health status, environmental conditions, and emotional responses, and they enable an ongoing flow of information between the user and their surroundings.

Wearable technologies are not merely technical hardware; they have also become an extension of digital identity (Chau et al., 2019). By bridging users' physical presence with digital environments, these devices adapt to individuals' behaviors and preferences to deliver personalized experiences. In this respect, wearable technologies are directly associated with disciplines such as cognitive ergonomics, behavioral design, and user-centered innovation.

A defining characteristic of wearable technologies is their intelligent structure, which can be worn on different parts of the body or integrated into clothing. These devices may be designed as wristbands, glasses, rings, watches, headphones, patches, shoe insoles, or sensors embedded within garment fabrics (Alp & Doğan, 2021; Karaca, 2022) (Figure 1). Some products can also be applied directly to the skin in the form of biosensor tattoos (Değerli, 2019; Sak & Akkaş, 2024), illustrating the current extent of human–technology integration. In comparison with contemporary smartphones and tablets, the primary added value of wearable technologies lies in their ability to offer monitoring and screening functions, such as biofeedback and other sensory and physiological features grounded in biometrics. Although constrained by battery life, wearable devices can measure such parameters continuously; they are practical to use, uninterrupted in operation, and portable. In addition, they provide significant convenience by enabling hands-free access to electronic systems (Ometov et al., 2021).

Figure 1: Examples of Wearable Technologies
Source: Turkish Intelligence Foundation, 2025.

The functional diversity of wearable technologies requires them to be conceptualized not merely as physical devices, but as integrated systems that directly shape user experience and become embedded in individuals' daily lives. Within this framework, the functional attributes of wearable technologies can be summarized under six core characteristics (Ching & Shing, 2016):

- *Hands-free (non-restrictive):* Wearable technologies enable users to maintain other activities while using the device, thereby supporting freedom of movement and minimizing physical constraints.
- *Always-on (controllable):* These devices remain continuously active and function as responsive systems that can be controlled by users at any time.
- *Context-aware (attentive):* Wearable technologies can sense environmental factors and operate through multimodal and multisensory capabilities, adapting to their surroundings and enriching the user experience.
- *Attention-getting (observable):* These devices are interactive systems that can keep users' attention engaged when necessary through notifications such as alerts, messages, or reminders.
- *Connected (communicative):* By operating in an integrated manner with wireless networks, wearable technologies enable real-time information exchange.
- *Non-obstructive:* These devices are designed to provide technological interaction without isolating the user from the external environment, allowing individuals to maintain natural communication with their surroundings.

These characteristics indicate that wearable technologies are not merely technical devices but, rather, sociotechnical systems. The advancement of mobile network infrastructure, high-speed data transmission, and miniaturized microprocessors has substantially increased both the diffusion and efficiency of these systems (Eurofond, 2019). As a result, individuals' continuous connectivity to digital environments has created the conditions for the emergence of data-driven lifestyles.

As a natural outcome of these developments, wearable technologies are now utilized across a wide range of domains, including healthcare, education, sports, defense, security, communication, and tourism. In tourism in particular, these technologies make visitor experiences more interactive, safer, and more personalized (Çakır, Aytekin & Timuçin, 2018). Through augmented reality glasses, tourists can access interactive information in historical and cultural sites, while smart wristbands and watches provide services such as route tracking, translation, real-time notifications, and health monitoring. Collectively, these functions demonstrate that wearable technologies are increasingly aligned with experience-based tourism and have gained prominence as an innovative instrument in contemporary tourism practices.

3. Classification of Wearable Technologies and Product Types

Wearable technologies can be classified according to their on-body placement, energy consumption profiles, and battery type. In terms of energy consumption, wearable devices are typically grouped into three categories low, medium, and high-power consumptionwhereas, in terms of battery type, they are commonly classified as lithium coin, lithium-ion, and lithium-polymer batteries. Nevertheless, classifying wearable technologies by their location on the body is among the most natural and widely used approaches, as it most clearly captures both application diversity and the dimensions of human–technology interaction (Ometov et al., 2021: 6-8). Within this framework, wearable technologies can be categorized into eight groups based on devices' technical functions, their compatibility with human anatomy, and the body regions in which they are used (Figure 2) (Kılıç, 2017: 102). This classification includes:

- *Head-integrated wearable technologies:* smart helmets, infotainment systems, military wear.
- *Eye-integrated wearable technologies:* smart glasses, AR/VR systems, smart contact lenses.
- *Ear-integrated wearable technologies:* hearing aids, smart earphones/headsets, smart earrings.

- *Torso-integrated wearable technologies:* smart clothing, chest straps, medical skin patches.
- *Arm-integrated wearable technologies:* medical smart garments, physical activity trackers, skin patches, sportswear.
- *Wrist-integrated wearable technologies:* smart wristbands, smart bracelets, fitness trackers.
- *Leg- and foot-integrated wearable technologies:* smart shoes, medical devices, military and sports apparel.
- *Other products:* multifunctional products adapted or implanted by the user.

Figure 2: Examples of Body Regions Where Wearable Technologies Are Used
Source: med.stanford.edu, 2022.

This classification demonstrates that wearable technologies are not merely functional devices, but multi-dimensional systems integrated into human lifestyles. Wearable technologies have emerged alongside the digital revolution and have attracted consumer attention largely due to their capacity to be seamlessly incorporated into everyday life. Their use has increased rapidly in devices such as wristbands and smartwatches that provide real-time access to environmental information, including weather conditions and traffic updates (Guebel et al., 2025). In this way, users can enhance environmental awareness while also strengthening time management and perceptions of safety.

Enabled by embedded sensors and software, wearable technologies collect users' physical and environmental data, deliver real-time information, and provide practical benefits across diverse domains (Karaca, 2022). The functions and purposes of wearable technologies vary according to sector-specific requirements. These devices may be integrated into tools used by workers to enhance productivity, or they may be designed as smart fabrics or garments that facilitate movement. Particularly in fields such as industrial production, healthcare, and tourism, the flexible nature of wearable systems makes it possible to offer solutions tailored to user needs.

While some wearable devices are worn directly by the user, others can be embedded into textiles in the form of lightweight, compact smart patches that function as sensors and are integrated with technology (Alp & Doğan, 2021).

Wearable technology products are predominantly designed as specialized electronic monitoring devices that operate in sync with computers or smartphones typically via wireless connectivity in order to enable long-term data tracking. Integrated into a range of objects such as rings, smart glasses, smartwatches, wristbands, and bracelets, these devices function as wearable, portable, and compact computer systems incorporating the latest technologies (Kaewkannate & Kim, 2016). From this perspective, each product is not merely a piece of hardware, but also a micro-level information system that continuously analyzes user data.

A wide variety of materials and devices are considered within the scope of wearable technologies, including smart glasses, optical lenses, watches, and wristbands; sensor-enabled rings and necklaces; virtual reality headsets; smart earphones/headsets; artificial skins and skin-applied tattoos; smart bandages; as well as garments, shoes, and gloves. Moreover, with advances in robotic systems, wearable robots such as biomechatronic exoskeletons that enhance the body's physical capacity or compensate for functional limitationsare also included within this technological domain (Sezgin, 2019). These innovative products have the potential to redefine the boundaries of human-machine interaction in the intelligent societies of the future.

4. Digital Transformation and the Impact of Wearable Technologies on the Tourism Sector

Technology is a central driver that transforms and shapes multiple sectors in today's world, and global trends as well as technological developments increasingly compel the tourism industry to adopt and implement innovations in information and communication technologies (Pai et al., 2020; Sezgin, Albakrı, & Abouchala, 2024). These developments have reconfigured traditional

approaches in tourism and have accelerated the diffusion of smart tourism practices and digital technologies. Effective utilization of digital capabilities across all stages from reservation processes to the completion of travel enhances the competitiveness of tourism enterprises, adds value to tourism products and visitor experiences, and increases customer satisfaction (Ertuğral, Kuran & Tekeli, 2022; Azadaliyev & Demirkol, 2023).

Digital transformation has also substantially influenced the expectations of tourism consumers. Today, these expectations are shaped around four core themes: a personalized service approach, a desire for experiences that inspire and are inspired, a tendency toward mobility, and a demand for easy and rapid solutions (Association of Turkish Travel Agencies-TURSAB, 2019). Contemporary tourists increasingly favor innovative businesses that move beyond conventional service models and align with the requirements of the digital era. Accordingly, tourism enterprises must adapt to digital transformation, strengthen R&D activities, and structure technological components in a sustainable manner in order to secure competitive advantage. In particular, tourists expect the same level of digital accessibility and convenience they experience in daily life to be available in the accommodation facilities they use; consequently, digital service quality has become a key determinant of firms' competitive capacity (Okatan & Yıldırım, 2021).

The use of technology in the tourism industry is becoming increasingly diversified in ways that enable more interactive and personalized visitor experiences. Applications such as smart rooms and voice-command systems, augmented and virtual reality, blockchain, cloud computing, big data, Google Maps, kiosks, the Internet of Things (IoT), optimization services, robotic technologies, artificial intelligence, and facial recognition technologies (Table 2) provide tourists with opportunities to explore destinations, virtually visit historical sites, and experience travel through virtual tours (Aydınbaş, 2023). The interaction between tourism and technology has become particularly concentrated in the domains of IoT and artificial intelligence. The Internet of Things enhances comfort and security in accommodation establishments and destinations, while sensors in smart hotels enable a more nuanced understanding of guests' preferences and needs (Üstüner & Dilek, 2024). In parallel, artificial intelligence is used effectively to improve personalized services, analyze customer demands, and enhance the overall travel experience.

Table 2: Emerging Technologies Used in the Tourism Industry

Technologies	Reflections of Emerging Technologies in the Tourism Industry
Smart Room and Voice-Control Systems	In smart rooms, guests can use a tablet to adjust room temperature and lighting and to place orders or request services such as spa treatments. Smart-room systems further enable these actions through voice commands (voice activation), thereby enhancing convenience and service responsiveness.
Augmented Reality (AR)	Augmented reality is used for three-dimensional visualizations across tourism settings, including accommodation businesses, cultural heritage sites, museums, and food-and-beverage establishments (e.g., displaying preparation processes, ingredients, and calorie calculations).
Blockchain	Blockchain technology offers tourism businesses stability and sustainable opportunities. Through blockchain-enabled systems, tourists can carry out processes such as digital reservations, digital payments, and identity verification securely.
Cloud Computing	Within tourism enterprises, cloud technologies are widely employed in e-commerce, the establishment of IT infrastructures, reservations, customer management, and marketing activities.
Big Data	Big data contributes to the tourism sector by playing a key role in areas such as demand forecasting, the design of personalized products, and the measurement of customer satisfaction.
Google Maps	Google Maps provides tourists with navigation support before and during travel, enabling online location tracking and the visualization of points of interest.
Kiosks	Kiosks are self-service technologies that facilitate tourist transactions and reduce staffing needs; they are used in contexts such as hotel check-in procedures and restaurant ordering systems.
Internet of Things (IoT)	Through IoT technologies, tourists' activities can be monitored, energy consumption in smart rooms can be optimized, and personalized services can be delivered.
RFID (Radio Frequency Identification) Technology	RFID systems are used in accommodation enterprises for tracking the quantity of items in use, monitoring products, and supporting inventory management.
Near Field Communication (NFC)	Near Field Communication (NFC) enables communication between devices operating at high frequency over short ranges and offers tourists convenient access to information and services. For example, tourists can obtain tickets, check schedules, or access information about museums and historical assets by holding their phones near NFC-enabled panels at bus stops or attractions.
QR Code Technology	QR code applications—now widespread across hotels, agencies, restaurants, and airlines—allow tourists to access destination-related information quickly and easily via smartphones.
3D Printers	In food-and-beverage businesses, the use of 3D printers has become increasingly common; various foods such as pureed potatoes, chocolate, seafood, and fruits have begun to be produced through this technology.

	In addition, 3D printing enables the production of foods tailored to guests who follow specific diets and individualized nutritional requirements.
Mobile Applications	Mobile applications used in tourism facilitate travel planning, accommodation arrangements, transportation management, and route creation, making the holiday experience more practical and manageable.
Touchscreen Devices	Electronic touchscreen displays installed in airports, shopping malls, and touristic areas provide tourists with uninterrupted, 24/7 access to the information they need.
Optimization Services	AI-based optimization services are utilized in areas such as pricing, customer-demand forecasting, and service-quality improvement.
Robotic Technologies	Robotic technologies are used for tasks such as hotel reception services, luggage handling, room service, and cleaning, thereby increasing service speed and enhancing customer satisfaction.
Virtual Reality (VR)	Virtual reality supports the experience of touristic destinations in digital environments and is used effectively in pre-travel promotion and marketing activities.
Artificial Intelligence (AI)	Artificial intelligence technologies are applied to the analysis of customer data, satisfaction measurement, demand forecasting, and the support of operational decision-making.
Wearable Technologies	Wearable technologies are used in tourism to enhance visitor experience, increase safety, and deliver personalized services. Smart wristbands, watches, and glasses offer functions such as navigation, language translation, health monitoring, and payment convenience, making travel more comfortable and interactive.
Facial Recognition Technologies	Facial recognition and biometric identifiers are employed for contactless authentication in processes such as hotel check-in/check-out procedures, airport security screening, and payments.

Source: Çelik & Topsakal, 2019; Hazarhun, 2022; Aydınbaş, 2023.

Today, as an extension of the digital transformation process, wearable technologies have emerged and secured a significant position within the tourism sector. These devices provide tourists with multiple conveniences throughout their journeys and are actively adopted by tourism-related venues. For example, hotel check-in procedures, flight and ticketing processes at airports, and smart guiding systems in touristic sites constitute some of the main application areas of these technologies.

One of the most important applications of wearable technologies in tourism is the development of smart tour-guiding systems. Through such systems, traditional paper maps and guidebooks have increasingly been replaced by wearable smart technologies that deliver real-time information and personalized recommendations. For this reason, wearable technologies have become a preferred option among tourists (Pai et al., 2020). In addition, these technologies enable visitors to record, organize, and share their experiences, while facilitating

travel by providing up-to-date information and recommendations regarding places to visit (Jhajharia, Pal & Verma, 2014).

Beyond new hardware such as virtual reality headsets, smart glasses, and gloves, the integration of multifunctional applications with mobile devices together with device functionalities that track user movement, including social network connectivity, gyroscopes, and accelerometers has begun to redefine both human–machine and human–human interaction and to immerse users in digital realities (Sidiropoulos, Bechtsis & Vlachos, 2021). In this way, tourists can access multimedia-rich travel information anytime and anywhere through mobile travel guides, location-based infotainment services, and mobile social networks. Owing to the location-sensing capabilities of mobile devices, such information can be filtered according to travelers' needs and preferences, allowing travel-related content to be organized effectively for both tourists and the tourism industry (Kourouthanassis et al., 2015).

Wearable technologies, which offer ease of use, real-time access to data, and personalized experiences, are becoming increasingly important for destinations and service providers (Köse et al., 2024). Moreover, immersive reality applications (AR, VR, MR) have emerged as a leading driver of digital transformation in tourism. These technologies enable tourists to experience products, services, and destinations in advance, create personalized travel plans, and contribute to a sustainable tourism approach. In this way, wearable technologies have moved beyond being mere tools for information delivery and have become strategic elements that shape experience-based travel (De Canio et al., 2022).

5. Application Areas of Wearable Technologies and Their Contributions to Tourist Experience

To sustain its growth and evolve toward a smarter structure, the tourism sector increasingly draws on innovative services grounded in Information and Communication Technologies (ICT). Among next-generation information technologies, the Internet of Things (IoT), cloud computing, big data, artificial intelligence (AI), augmented and virtual reality (AVR), mobile applications, and, in particular, wearable technologies have become especially salient. Smartwatches, smart glasses, and sensor-based devices personalize the tourist experience, improve service efficiency, and render tourism more interactive within the broader process of digital transformation (Çark & Akyürek, 2021).

Smart technologies are becoming widespread not only in environments such as hotels, museums, cafés, and restaurants, but also through wearable devices. Digital transformation has enabled a shift from traditional tourism toward smart

tourism; today, a tourist's journey often begins through wearable devices such as computers, smartwatches, smart wristbands, smart glasses, or virtual reality headsets. These technologies provide personalized services across every stage from discovering new destinations to reservation processes, from itinerary planning to post-trip experience sharing thereby initiating a new interaction-oriented era in the tourism industry (Aydınbaş, 2023).

Wearable technologies, through augmented reality (AR)-based applications, integrate digital information into the physical environment and provide tourists with real-time informational, health, and safety data. By operating in interaction with connected hotel systems, they also personalize experiences in line with individual preferences (Farif, Boudia, & Mwangi, 2023). In museum contexts, visitors can use wearable devices to access detailed information about exhibited historical artifacts and artistic objects, including their historical background, artistic features, production techniques, and cultural contexts (Shehade & Stylianou-Lamberty, 2020).

In addition, wearable devices enable tourists to monitor their health status in real time. Data such as heart rate, sleep patterns, activity levels, step count, calories burned, and hydration reminders can facilitate health management particularly during adventure and nature-based trips and can improve travel safety by transmitting vital information to medical teams in emergency situations (Vijayan, 2021).

Location-based services (LBS) represent another key domain in which wearable devices transform the tourism experience. GPS-enabled devices support tourists in navigating unfamiliar destinations, recommend nearby points of interest, and provide real-time information about local attractions, events, and restaurants. Smartwatches with cellular capabilities further make it possible to remain connected without relying on smartphones and, through notifications, messages, and alerts, enable tourists to stay informed without interrupting their exploration experience (Alrahhal et al., 2020).

In line with findings reported in the literature, the contributions of wearable technologies to the tourism experience are summarized in Table 3. Overall, these technologies have moved beyond the mere transmission of information to become a strategic element shaping experience-based travel; through personalized experiences, health monitoring, location-based services, and interactive content delivery, they have become an indispensable component of modern tourism.

Table 3. Wearable Technologies and Their Contributions to Tourist Experience

Device	Functions	Contribution to Tourist Experience	Example Use Contexts
Smartwatch	Heart rate, step count, GPS, notifications	Health and activity monitoring; route management; emergency alerts	Nature hikes, city tours, adventure sports
Smart Wristband	Activity tracking, sleep monitoring, reminders	Easy monitoring of daily routines and travel plans	Hotel stays, trip planning
AR/VR Glasses	3D augmented content, display of historical and cultural information	Enriches cultural and historical experiences; supports interactive learning	Museums, historical sites, tour guiding
Smart Headphones	Audio guidance, translation, communication	Provides language support and guidance for tourists	City tours, museum visits, events
Virtual Reality Headset	Virtual tour experience, interactive learning	Pre-travel destination experience; personalized planning	Virtual museum tours, pre-holiday exploration
Smart Clothing	Body temperature monitoring, motion detection	Comfort and health monitoring; support for sports and activities	Adventure and sports tourism, wellness programs
Smart Shoes	Step and distance measurement, GPS	Route tracking and physical activity management	City tours, walking and trekking activities
Sensor-Based Patch or Tattoo	Biometric monitoring (heart rate, glucose, stress)	Health monitoring; emergency notifications	Adventure tourism, long-distance travel, health-focused tours

Conclusion

Wearable technologies have become increasingly influential in contemporary society and, in particular, within the tourism sector. Moving beyond the status of purely technical devices, they have evolved into intelligent systems that integrate seamlessly into individuals' daily lives. An examination of the literature and the historical trajectory suggests that the emergence of wearable technologies has been shaped by the convergence of societal needs, scientific curiosity, aesthetic considerations, and broader processes of digital transformation. This indicates that the technological phenomenon extends beyond hardware, encompassing a structure centered on human-machine interaction and user experience.

In addition, wearable technologies support the development of data-driven management, personalized recommendation systems, and experience-oriented travel practices. By responding to tourists' needs and preferences in real time, these systems make travel more informed, safer, and more enjoyable. Their

contributions in areas such as health, safety, and environmental awareness further position wearable technologies as a critical component of contemporary tourism.

Overall, wearable technologies in the tourism sector not only facilitate information delivery but also play a pivotal role in shaping experience-based travel, enhancing service quality, and increasing tourist satisfaction. In the future, with the expanding diversity of these technologies and their advanced data-analytics capabilities, tourism applications are expected to become even more personalized, sustainable, and interactive. In this context, wearable technologies stand at the core of the tourism industry's digitalization and experience-oriented transformation.

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Chapter 3

Academic Achievement and Psychological Factors: A Comprehensive Review

Özgü YALÇIN ÇER[1]

Academic achievement has long been treated as a visible indicator of educational quality, yet contemporary literature makes it clear that achievement is not simply the outcome of aptitude, curriculum exposure, or instructional time. Students' perceptions of challenges, their regulation of effort and motivation, their management of anxiety, and their academic self-perceptions collectively shape academic performance. As a result, since the onset of the 2019-2020 COVID-19 Pandemic and the disruption of traditional education systems, both the emphasis upon, and the way, online and blended learning have been incorporated into education has exploded, as has the emphasis on student well-being. All these changes have combined to create a much more blended and nuanced view of the psychological factors that drive student academic performance since 2019. As noted previously, the recent literature asks not just if motivation, anxiety or self-efficacy have a significant role in student academic performance; it also looks at how these factors interact, and through which mechanisms they influence academic performance or what other factors are in succession to each of these factors, and how the contribution of each of these psychological factors increases or decreases depending upon whether or not their contribution to student performance is positive or negative. As such, recent literature suggests that the focus of the research has shifted to the point where previously, psychological factors were treated as separate variables that could independently or in concert contribute to academic performance as measured by grades or test performance. More recently, particularly regarding research and scholarships following 2020, most research has focused upon groupings of psychological variables within mediation/structural equation modelling. This shift in focus is critical because academic performance is not driven by one isolated psychological variable within an education context; rather, academic performance is driven by a combination of adaptive psychological beliefs, emotions, and behaviors that reinforce one another, or maladaptive psychological beliefs, emotions, and behaviors that compound upon one another to create an

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avoidance response, a lack of persistence to be successful, and an overwhelming sense of emotional load on the student (Basileo et al., 2024; Rožman et al., 2025; Wang et al., 2025).

The theoretical frameworks underlying the present literature are numerous and interconnected. The Self-Determination Theory (SDT) provides insight into motivation as a non-adaptive construct. Additionally, SDT identifies five different kinds of motivational regulation - intrinsic, identified, introjected, external, and amotivated (Ryan et al., 2011). According to Howard et al. (2021), the forms of motivation that rank highest in terms of autonomous regulation (i.e., intrinsic motivation and identified regulation) are associated with positive outcomes such as persistence, success, and well-being. Conversely, controlled motivation generally tends to be less stable than autonomous motivation, while amotivated behavior consistently results in negative effects. Another complementary perspective on motivation comes from Social Cognitive Theory, which states that students' beliefs about their ability to perform academic tasks influences their levels of effort, persistence, and interpretation of failure. In subsequent research, self-efficacy is often cited as an important mediator of the motivational energy used to complete a task successfully. The research regarding self-regulated learning further demonstrates the importance of considering how students carry out their intentions through a series of activities. Planning and monitoring for success, employing strategies, managing time effectively, and being flexible all play important roles in contributing to academic success. Learning for success does not rely solely upon a desire to learn but also on how a person learns under changing circumstances. Theobald (2021) and Xu et al. (2023) together illustrate that self-regulating skills are central to learning success because they represent the connection between readiness to learn and actual successful academic performance. Recent research is addressing more ecologically oriented psychological factors in school settings by studying how teachers support, perceived satisfaction of basic psychological needs, peer relationships, and readiness to learn online relates to students' anxiety, engagement, and efficacy. An ecologically based view of psychological factors in academic achievement recognizes that psychological factors are influenced by both individual and environmental factors.

For many years, psychologists have studied the effects of motivation and have determined that they significantly influence students' academic success. From the literature available from 2021 onwards, the nature of motivation appears to be more precise. Howard, et al. (2021) conducted a meta-analysis based on Self-determination theory and concluded that intrinsic motivation and identified regulations tend to positively impact success and persistence during difficult

tasks, while amotivation and external regulations tend to have a negative effect on success and persistence. Therefore, the importance of motivation does not always correlate to the level of motivation. Autonomy supportive regulation is the category of motivation that appears to support sustained effort over time and reduce emotional impacts. Recent research reinforces this conclusion; in a study by Basileo, et al. (2024), self-efficacy was found to be correlated with motivation, but when self-efficacy and motivation were modeled together, self-efficacy accounted for a greater percentage of variance in achievement than motivation did. In addition, Rožman, et al. (2025) found that motivation was related to academic success in business students, but presented evidence that motivation was not the only predictor of academic success, rather, other factors (i.e., mental and physical health, work-life balance, anxiety) played a role in overall academic success, and that motivation functions within a larger psychological system. Evidence from the literature indicates that motivation should be conceptualized beyond an attitude or trait in developing effective educational interventions; encouraging and enhancing students' autonomy, competence, and relevance will lead to greater student benefits and engagement than relying solely on external rewards, coercion, or fear of failure (i.e., external motivation). Students who receive continuous motivation from external sources can demonstrate their ability to succeed over a short period of time through the application of observable pressure; however, cumulative research indicates that students who are motivated by their own efforts demonstrate a higher level of academic success over the long term when compared to students who are motivated by external factors (Howard, et al., 2021; Basileo, et al., 2024).

Among these many variables, no other is more consistent and more proximal to academic achievement than self-efficacy. Students who believe that they can organize and execute the appropriate actions necessary for success in school are likely to persevere longer, invest more effort, adopt strategies, and bounce back from failure. Basileo et al. (2024), in a study of German middle school students, found self-efficacy to have the largest relationship with mathematics and German achievement, and mediated the association of motivation and achievement. That is, motivation was not educationally inert, although it did much of its work through self-efficacy. This pattern continues in higher education. El-Gazar et al. (2024) showed that nursing students' academic self-efficacy and e-learning readiness were both significant predictors of academic achievement, suggesting that when learning environments require technological adaptation, self-direction, and loss of immediacy of teacher oversight, students' confidence becomes critical. Casanova et al. (2024) reported a strong positive correlation between engagement and self-efficacy among first-year university students, showing that

students' beliefs about their efficacy are shaped by the quality of their early adjustment to higher education. The 2025 meta-analytic structural equation model by Wang et al. (2025) sheds even more light. It showed self-efficacy correlated positively with outcomes at a moderate to high level, and that social support and academic anxiety partially mediated the relationship. The reason this is interesting is that self-efficacy appears to be neither a trivial confidence effect, nor a wholly independent force. It is at once the result of supportive educational conditions, and a mechanism that transmits those conditions into increased academic performance.

There are many things that students need to consider when trying to be successful academically aside from simply believing that they can succeed and they must manage their attention, time, strategy, and commitment to the tasks that they are trying to complete. This is one of the reasons that self-regulation of learning (SRL) has received much attention in some of the latest research. Theobald (2021) conducted a systematic review of 49 SRL training studies and found that university students participating in self-regulated learning (SRL) training program improved their academic performance, use of SRL strategies, and motivation levels. The significance of this finding is that it provides support for the idea that self-regulated learning is teachable and that some form of psychological support for achievement does not need to remain as a concept that is abstract or simply therapeutic in nature. The findings by Xu et al. (2023) from a scoping review of 163 SRL studies related to online and mixed delivery indicate an expected finding in that SRL was consistently associated with higher academic achievement in these contexts. This finding is especially important because online and mixed delivery modes present students with more demands around planning and monitoring their independent work, and the structure of academic accomplishment can be easier to identify in these formats. Disengagement, detrimental study habits, and subsequent poor academic results are much easier to achieve when students do not monitor their time or self-manage. Profiling based research also supports the use of psychology to promote educational accomplishment. Engagement is also more than just being physically in class or being compliant to study and Casanova et al. (2024) found that academic engagement (AE) during the first semester predicted academic success the first semester and indirectly predicted academic success the second semester.

One of the most significant new trends in literature is further connecting academic achievement literature with mental health literature. Zhang et al. (2024) find that stress, depression, and anxiety are central to academic performance in a post-COVID sample of university students. This study is particularly valuable because it represents the logic of the times we live in, that is, a world where

students' taken-for-granted performance can only seem to need to reflect a wider burden on mental health. When the mood of the household darkens, focus, memories, sleep, and keenness for tasks dims. At the same time, literature seems careful to warn against too linear reading. Kienngam et al.(2022) find that, among a sample of senior high school students, an optimal level of anxiety was compatible with whereas high anxiety could lead to depression and disordered motivation among the academically high-performing mathematics student. As has been described for a while, some level of evaluative arousal seems enlivening (literally) to effort, but here the boundary condition is clearer than ever: the anxiety becomes unhelpful once it shifts from activation to losing track of that focus, to revisiting the feelings that arise, to fear of failure. Wang et al. (2025) bolster this assessment with a broader synthesis. In their meta-analytic SEM, academic anxiety predicted negative academic outcomes, and in turn, mediated self-efficacy's path to achievement. In other words, anxiety is not just another load on the emotional wagon the students bear, it's something that makes it harder to turn beliefs about their competence into a general sense of achievement. Similarly, Rožman et al. (2025) find that anxiety, and particularly exam-related anxiety, disrupts students' experience of academic success. So, the most recent evidence we think suggests the same sort of balanced picture as has been discussed, perhaps textbook mild anxiety related to challenge achievement accompanies performance, but something more substantial–anxiety, stress, depressive symptoms–seem harmful to achievement via its impact on cognition and motivation.

. A large body of research on resilience, grit, and aspects of well-being has grown rapidly in recent years. Typically, experts associate these concepts with each other; however, recent studies indicate that it would be more beneficial to treat them separately than together. The term grit refers to persistence and consistency of interest, while resilience refers to how individuals adjust to and/or cope with adversarial situations functioning adaptively under adversity. For example, Neroni et al. (2022) provide evidence that consistency of interest is a meaningful predictor for exam attempts and study progress in higher online education, and that neither self-efficacy nor self-esteem were independently associated with either of these same outcomes when controlling other factors; therefore the continuous direction over time was more critical than the type of environment (i.e., tightly or loosely structured, flexible or rigidly paced) when the educational experience was unstructured. Resilience has been a subject of intensive research because of the ability for students to maintain effective or recover effective functioning when overwhelmed by stress, failed academically, or left to navigate uncertainty. Further, Cai and Meng (2025) indicated that

academic resilience positively correlated to academic performance for university students and mediated through teacher support - resilient students outperformed their peers; however, the strongest outcomes of resiliency investments were through the supportive relationships developed between teachers and students. Thus, grounded in literature, academic resiliency is not merely a characteristic of a person but rather approximation of the conditions that exist for resiliency to occur to develop and flourish. Conflicting literature exists on well-being with some dimensions exhibiting support for achievement and others without exhibiting a consistent direction - cognitive wellbeing supports achievement; however, students with higher levels of performance report higher levels of school-related stress. The complexity within achievement and well-being serves as a signal that the two concepts are not always complete allies; thus, educational systems that perform well may create a cost to emotional well-being, so the most recent research suggests that we should evaluate achievement within the broader context of success than to evaluate against success.

Many people believe that psychological factors involved in achievement are private characteristics. However, researchers are beginning to show that social context continuously influences psychological factors associated with achievement for self-efficacy and for autonomous motivation, both of which influence performance. In addition, they suggest that when students receive support in their feelings of competence or relatedness or their need for meaningful autonomy, then achievement tends to occur in the areas that experience all of these types of support. Cai and Meng show that teacher support is a mediator of resilience and achievement; therefore, this is not a surprise, as teachers can help create an atmosphere of uncertainty reduction, academic scaffolding, and support of the latent trait of resilience into successful behavior. They also find that social supports increase performance and partially mediate the relationship from self-efficacy to achievement. According to the papers, support does not appear to be a soft option; rather, it serves as a mechanism to describe the relationship between mobilizing internal resources and outward behavior. This suggests that schools and universities should not consider psychosocial support as something outside of their academic mission. Providing students with a sense of belonging and recognition or acknowledgement, feedback, and responsiveness is essential for their emotional safety and willingness to exert themselves, as they can expect their hard work at school to make a difference.

Another clear indication of a student's poor self-regulation affecting their academic success is procrastination. Akpur (2020) conducted a meta-analysis of procrastination and determined procrastination overall has a negative effect on a student's academic performance. Kooren et al. (2024) performed a meta-analysis

on procrastination and provided further clarification regarding the relationship between procrastination and a student's performance. The primary conclusion derived from this meta-analysis was that no single global score could accurately describe the relationship between procrastination and performance; there are students who are strategic in delaying their work while other students will not. In other words, students tend to passively procrastinate due to many reasons: failure at self-regulation; fear of failure; poor time-management skills; or loss of control over study behavior. Many emotional indicators exist that would classify students' procrastination; however, they typically reside at the intersection of low self-efficacy, anxiety, varying levels of motivation, and weak self-regulation. Therefore, while students procrastinate for many reasons, including being poor planners, many students will also procrastinate because they perceive the tasks they are to complete as threatening, boring, unclear or incongruent with their personal values or beliefs. Because of this, anti-procrastination methods that focus solely on time-planning may not bring desired results because recent literature suggests that students must develop their efficacy, clarify their goals, reduce avoidant anxiety, and be able to focus on the learning process to mitigate procrastination.

The 2020–2026 literature suggests that achievement is the result of interactive effects rather than independent variable traits, with self-efficacy mediating the relationship between motivation and achievement (Basileo et al., 2024); social support and anxiety mediate the relationship between self-efficacy and academic outcomes (Wang et al., 2025); and that teacher support mediates the relationship between resilience and achievement (Cai & Meng, 2025). In these studies, and at least one other, it appears that multiple stages should be utilized to create a model of achievement as a process rather than because of the independent variable. A different way to conceptualize these results would be to think about how these psychological pathways create a conversion. Motivation creates the energy and direction. This energy is converted by self-efficacy into confidence for action. As a result of this confidence, the individual will engage in organized behavior. The entire system is stabilized through supportive relationships, need satisfaction, and the like; and the processes are interrupted by anxiety, depression, and passive procrastination. As a result, when there is an intact pathway, the cumulative product of pathways of psychological functioning will lead to academic achievement, and this process-based approach provides a more accurate understanding of the complexity in today's educational systems than does simpler trait-based explanations. The perspective of interaction also explains seemingly contradictory findings. For example, while motivation may have weak direct effects in one setting, it does not necessarily mean that motivation is unimportant,

because the effect of motivation is carried through efficacy or strategy use (Le et al., 2013). While students experiencing moderate to high levels of stress appear to be negatively correlated with well-being, there are some high-achieving students who become stressed; however, stress can occur with performance if a student has the necessary support or efficacy or self-regulatory abilities to counterbalance the emotional cost (Friedman et al., 2007). Consequently, the more recent literature is less focused on ranking which variables that predict (or that could be truly orthogonal to) those we care about most; rather they have focused on mapping the pathways through which psychological functioning becomes educationally functional due to the elements of motivational processes or through the management of those internal and external resources needed to achieve one's goals.

As shown through the research presented in this review, the impact of COVID on education continues, now seen within factors such as psychological affordances, where students have greater responsibility to manage their own studies, come prepared in some regards and take the onus for communication outside of the classroom compared with traditional models of education. Xu et al., (2023) found that self-regulated learning is one of the strongest predictors of success in online and blended educational settings. El-Gazar et al., (2024) found a joint positive relationship between nursing students' success and e-learning readiness and self-efficacy. In sum, the increased use of digital learning environments does not diminish the influence of psychological characteristics, but instead, bring them to the forefront. Additionally, the transformation resulting from the post-pandemic era is establishing an increasingly clear relationship between students' mental health and their academic performance. In a study examining students' performance during the post-COVID era, Zhang et al., (2024) found significant correlations between performance and mental health status, providing further evidence that psychological well-being has been relegated from an issue of welfare to one of significance for understanding contemporary academic success. It is also interesting to note how unevenly students possess the ability to independently learn within asynchrony; specifically, students with high levels of self-regulation, high levels of motivation and high levels of confidence in their ability to use digital technologies are likely to be more adaptable in today's learning environment than students with pre-existing vulnerabilities (e.g., anxiety, disorganization or low motivation). Therefore, as researchers continue to examine achievement following 2020, increasing connections are emerging between achievement and equity as part of the larger body of research as these psychological resources will be distributed

unequally and politically supported by the existing political/social framework in place to support individuals who possess such resources.

Research has recently uncovered another synthesis point about transition: that the structure of achievement can be seen to exist through time at points of time associated with two types of educational transition. The psychological structure of achievement was found to very well be seen at times of transition for students making the transitions from middle school to high school, from high school to university, transitioning to online learning, and becoming a part of a high-stakes testing and assessment culture. For example, Casanova et al. (2024) reported that by the end of their first semester of university study, some first-year university students who were beginning their first semester were showing high levels of engagement and self-efficacy as part of their transition into university. This demonstrates that psychological characteristics should not be viewed as background variables used to measure failure; they also should be viewed as early adjustment variables to assist in predicting and influencing outcomes. Transitions possess an important significance because they force students to simultaneously reformulate their identities, beliefs, habits and expectations of themselves, and their social associations with an identity of belonging as they go through different transitions. A student may develop decreased self-efficacy as they transition to a new environment where they have previously experienced academic success, as well as lack clarity on what the academic standards they must achieve are and have no established regulatory routines to use in the new environment. On the other hand, students who quickly develop a sense of belonging are confident that they can realistically achieve success, and are fully committed to the process of learning since they are actively engaged in learning will develop cumulative advantage early in their educational career and that advantage will propel through their educational career subsequently. The concept of path-dependence of academic success deserves increased attention in future interventions designed to improve academic success. Along similar lines, the same relationship exists developmentally. Younger children may require more co-regulation through their teachers and parents, while older children are expected to self-regulate more independently. Young and older children will perceive the factors that contribute to achievement differently due to differences in their respective performance expectations based on their age and maturity. For school-age populations, emotional climate factors and support factors may play a bigger role in impacting the stability of achievement as they relate to their emotional stability. Conversely, self-regulation, self-efficacy, and self-persistence will likely take more central importance in higher education given the fewer external structures present in higher education to provide guidance and regulation. A substantial body of

literature is growing to support this perspective, but longitudinal comparisons have not yet been conclusively demonstrated.

This reviewed literature begs the question of how achievement itself gets assessed. If schools engage in frequent, high-stakes, comparison-based assessments, they may be feeding the very psychological prices some students pay for learning. This does not suggest that assessment should be "softened" anywhere. "Good" assessment may depend partly on feedback that student finds credible and supports their sense of competence, adjustment of strategy, and beliefs about their efficacy. Assessors that yield only ranking information may incite anxiety without commensurate learning. Quality of instruction is as psychological as pedagogical. A good-quality system is not only one that yields a good metric, but one that does so in systems that reinforce effort, confidence and control over emotion and support. Recent achievement research echoes broader arguments about notions of school quality: Durable performance is available if students are appropriately challenged but also support for attaining skills in psychologically significant tasks of mastery.

The literature produced between 2020, and March 2026 increasingly suggests that academic achievement is psychological. Motivation matters – autonomously and meaningfully so. Self-efficacy matters – sometimes as the single most potent proximate predictor of achievement. Engagement and self-regulated learning matter – they matter because they turn aspirations and intents into long-run academic toil. Anxiety, depression, chronic stress, passive procrastination – all detract from achievement by sapping cognition, effort and persistence. Resilience, support and basic psychological need satisfaction matter – they matter because they give students more and powerful tools for persisting and performing when the rug is pulled from under them. The net effect of this work in the literature then is integrative – academic achievement is not a function of intellect alone but of a lively system whereby beliefs, emotions, strategies and relations all play a part. Educational systems seeking to upgrade long-term academic outcomes must understand this system.

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Chapter 4

Azerbaijan's Music Tourism Potential: The Role and Contributions Of Festival Organizations

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Introduction

Nowadays, the phenomenon of tourism has moved beyond the traditional concept of travel, evolving into a form centred on cultural discovery and experience. In this process of transformation, music-themed events have emerged as a significant attraction. Indeed, music lovers from all corners of the globe are now able to shape their travel plans around the festivals they intend to attend. In particular, these music-themed events organised through festivals not only involve the local population in the cultural production process but also help to direct international tourist flows. In this context, music festivals stand out not merely as artistic events but as multifaceted initiatives that support a country's economic development, cultural promotion, and image-building.

In this context, countries such as Azerbaijan—which are situated at the crossroads of East and West and possess a rich musical culture—hold significant potential for music tourism in terms of sustainable tourism development. With its broad musical spectrum spanning genres such as mugam, the art of the ashik, folk music, Azerbaijani classical music, and Azerbaijani jazz, the country has, particularly in recent years, established itself as a unique and multi-layered cultural destination through the music events it has organised. In particular, music events that have gained momentum since the 2000s, in line with state-supported cultural policies, have contributed both to the diversification of Azerbaijan's tourism policies and to the reshaping of its image in the international public sphere.

This study examines the impact of music festivals held in Azerbaijan on the country's tourism sector. It analyses events such as the Baku Jazz Festival, the Gabala International Music Festival, the Mugham Alemi Festival, the Xarıbülbül

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Folklore Festival, and the Zhara Festival, among others. In doing so, Azerbaijan's musical history is discussed, with a focus on how traditional music genres influence the country's cultural identity on an international scale. The visitor numbers of the aforementioned music festivals, their impact on regional development, and their implications for accommodation and transport infrastructure are examined within a statistical framework.

1.Music and Its Cultural Impact in Azerbaijan

1.1. The History of Music in Azerbaijan

Due to its geographical location at the crossroads of Asia and Europe, Azerbaijan has been home to the cultural heritage of many different civilisations throughout history. This strategic location has laid the groundwork for the formation of a rich and multi-layered cultural heritage within the country. Contemporary musicological research indicates that the origins of Azerbaijan's musical culture extend back thousands of years to ancient times. In this context, archaeological investigations have uncovered significant findings in the Gobustan region of the South Caucasus, dating back to the Upper Palaeolithic Age (approximately 15,000–40,000 years ago). Drawings resembling groups of people dancing together have been identified on rock surfaces in the area. These figures evoke "Yallı," a collective dance form within Azerbaijani culture. Near these figures lies a large stone block known locally as "Qaval Daş" (the tambourine stone). When struck with a hard object, this stone produces resonant sounds of varying pitches. Researchers regard this natural formation as one of the earliest known examples of a percussion instrument in Azerbaijan. As such, Qaval Daş is recognised not only as an archaeological finding but also as one of the symbols of historical musical culture. The discovery of over 6,000 rock paintings and archaeological elements similar to Qaval Daş in the Gobustan region clearly demonstrates the richness of the area in cultural and artistic terms. This valuable heritage was inscribed on the UNESCO World Heritage List in 2007 and is now protected at an international level (İsmayılov, 1984).

Broadly speaking, Azerbaijani music can be divided into three historical stages. The first stage is the "aşık" music tradition, preserved by folk bards and transmitted to the present day; the second stage is "mugam" music; and the third stage is Azerbaijani classical music.

1.2. Music Culture in Azerbaijan

The epic *Kitab-ı Dede Korkut* is regarded as the first written source addressing Azerbaijan's musical culture. This work contains numerous references to music, frequently highlighting the names of musical instruments and examples that

reflect the role of this art form in society. Dating from the 7th century, this epic is also considered Azerbaijan's first literary monument (Azerbaijan.az, 2025).
It is evident that during the Middle Ages, Azerbaijan's musical culture developed not only in terms of performance but also at a theoretical level. An examination of the works of Sefiyeddin Urmevi and Abdülkadir Meragi, two of the leading music scholars of the 13th–14th centuries, provides comprehensive insights into the musical culture of that period. Urmevi's treatises, *Kitabü'l-Edvar* and *Şerefiyye*, laid the foundations for a systematic theoretical framework in Eastern musical thought and are considered among the earliest works to explain structures such as the mugam (maqam) system and the notation system. Meragi and his sons, Abdulaziz Çelebi and Mahmud Çelebi, further developed this body of knowledge, making significant contributions to Middle Eastern musical thought. In the 17th century, Mirzebey's treatise *Musiqi haqqında* is recognised as one of the works demonstrating that this cultural legacy continued in Southern Azerbaijan (Azerbaijan Ministry of Culture, 2024).

From the 19th century onwards, musical life in Azerbaijani cities began to take on a more institutional form, with significant progress being made particularly in the development of the mugam tradition. Musical gatherings and artistic societies organised in cities such as Shusha, Baku, and Shamakhi contributed to the consolidation of both folk music and classical traditions. Shusha, in particular, emerged as such an important cultural centre during this period that it came to be known as the "conservatoire of the Caucasus." Artists such as Hacı Hüsü, Mir Möhsün Nevvab, Sadıkcan, and Məşədi Cəmil Əmirov became leading figures of the era in terms of mugam performance, artistic development, and musical education. During the same period, Mirze Sadık Asedoğlu (Sadıkcan) played a significant role in the development of Azerbaijani instrumental music by modernising the classical tar. The 11-string system he developed was later adopted in countries beyond Azerbaijan (Rzayeva, 2019).
By the 20th century, Azerbaijani musical culture had taken shape in a new form through the fusion of traditional and Western-influenced styles. The opera *Leyli and Mecnun* (1908), composed by Üzeyir Hacıbeyli—the founder of Azerbaijani classical music—is recognised not only in Azerbaijan but throughout the Muslim East as the first opera. With this work, Hacıbeyli also laid the foundations for a unique genre known as "mugham opera." In this opera, he adapted mugham structures and traditional melodies familiar to the public, based on Fuzuli's poetic text, into a modern theatrical language. Composers who followed further developed this synthesis, contributing to the emergence of new genres such as symphonic mugham. In particular, Fikret Amirov's works in the symphonic

mugam genre, titled *Şur* and *Kürd Ovşarı*, are considered pioneering in this context (Huseynaliyev, 2021).

One of the most striking features of Azerbaijan's musical culture is the diversity and richness of the instruments used in musical performances. Traditional instruments such as the tar, kamancha, saz, balaban, zurna, and nagara are fundamental elements that define the character of this musical culture. While each instrument has its own distinctive tone and character, their functions and contexts of use vary. For example, while instruments such as the tar and kamancha occupy a central position in mugham performance, the saz is used in the performance of aşık songs, whereas the zurna and nagara are more commonly used at weddings and similar events. As can be seen, these instruments are not merely tools for making music, but also serve as means of conveying emotions and telling stories.

1.3. Music Genres in Azerbaijan

1.3.1. Folk Music

Azerbaijani folk music is a rich artistic heritage that bears the deep imprints of the region's ancient culture, having been shaped and refined over centuries. This musical tradition is not merely a collection of melodies and rhythms; rather, it is a living cultural fabric that transmits a nation's collective memory, emotional world, historical experiences, and social values from one generation to the next. One of the most distinctive and compelling aspects of Azerbaijan's musical tradition is the âşık-ozan tradition. This tradition represents a unique art form in which words merge with music, and poetry comes to life through the strings of the saz. For centuries, âşıks have been not only musicians but also the conscience of society, narrators of history, and bearers of culture. They have expressed the people's joys, sorrows, longings, struggles, and hopes through poetry and music. Every melody rising from an âşık's saz is, in essence, a voice emerging from the heart of the Azerbaijani people. One of the most important functions of this musical tradition is the preservation and transmission of collective memory. In particular, epics have carried the Azerbaijani people's historical experiences, acts of heroism, loves, and tragedies from generation to generation. In this sense, the Köroğlu Epic is not merely a tale of heroism but also an expression of universal values such as justice, freedom, and resistance. Köroğlu holds a special place in Azerbaijani culture as a folk hero who stands against oppression and supports the oppressed. This epic has been recited with the accompaniment of the saz for centuries, reinterpreted by each generation, and has thus retained its vitality (Cafer, 2015).

As is well known, the structural characteristics of folk music represent one of the key indicators of a country's cultural diversity. Within the framework of Azerbaijani folk music, which possesses a rich theoretical foundation, each region has its own distinctive musical character. This diversity has shaped the music into a dynamic and continuously evolving art form. While preserving its traditional forms, this genre has also established its place in the modern world. The art of the âşık, which is included on UNESCO's "Intangible Cultural Heritage of Humanity" list, also plays a significant role in Azerbaijan's cultural diplomacy. The inclusion of this musical tradition in festivals and concerts held in various countries around the world demonstrates that it functions as a universal language. Once confined to village squares and weddings, the âşık tradition now represents Azerbaijan's cultural richness on international stages (Eurasia Travel, 2025).

1.3.2. Mugham

Regarded as the musical gem of Azerbaijan, mugham is one of the most ancient musical traditions of the Near and Middle Eastern societies. Numerous academic studies have been conducted on this genre, whose history extends from the Middle Ages to the present, in both Eastern and Western contexts. Over time, due to its deep-rooted history and rich content, mugham has evolved not only into a musical genre but also into a profound form of spiritual and cultural expression. This music possesses a philosophical depth that reflects aesthetic sensitivity and intellectual richness, transporting the listener into a powerful emotional atmosphere (İmrani, 1998).

Conceptually, as a professional musical form, mugham has been transmitted from generation to generation through oral tradition under the influence of various historical and social developments. The diversity of experiences encountered during the formation of this musical tradition has contributed to variations in its expressive power and emotional richness.

Although the mugham genre is known by different names in various parts of the world, all these musical systems are fundamentally classified within the same category. For example, it is known as *dastgah* in Iran, *muğam* in Azerbaijan, *makam* in Turkey and Arab countries, *istikhbar* and *nuba* in North Africa, *raga* in India, *khayal* in Pakistan, *maqom* in Uzbekistan and Tajikistan, *küi* in Kazakhstan, and *mukam* among the Uyghurs living in Turkmenistan and western China. Although these musical forms differ in terms of structure, level of development, emotional scope, and style, they share common musical principles (Zohrabov, 2013).

Azerbaijani mugham occupies a highly significant position not only within national culture but also within the broader framework of humanity's shared cultural heritage. This musical form, considered one of the most valuable elements of Azerbaijani musical culture, was officially recognised by UNESCO in 2003 and included on the list of the "Intangible Cultural Heritage of Humanity." This recognition represents an important development confirming mugham's artistic value and universal cultural impact (National Commission of the Republic of Azerbaijan for UNESCO, 2025).

There are differing academic perspectives regarding the origins of the melodic style of mugham. While some researchers associate its foundations with traditional Qur'anic recitation, others argue that it is rooted in the hymnal traditions of the Avesta, the sacred text of Zoroastrianism. Although these approaches emphasise different origins, they converge on the view that mugham is a musical tradition with sacred roots. Recognised as one of the most comprehensive genres of traditional music in Azerbaijani musical culture, mugham essentially consists of two main categories: the mugham *destgahs*, which form the basis of the vocal-instrumental structure, and the *zerbi-mughams*, which are performed with percussion accompaniment (İmrani, 1998).

1.3.3. Azerbaijani Classical Music

Azerbaijan's classical music culture took shape and developed through the literary and musical environment that emerged in the 19th century in the city of Shusha in Karabakh. During this period, the literary society known as 'Meclisi-üns', founded on the initiative of Hurşid Banu Natavan, one of the leading poets of the time, became one of the centres of literary and artistic production. In these gatherings, the works of Fuzuli, Nizami, and other classical Azerbaijani poets were recited to the public with musical accompaniment, thereby creating a cultural atmosphere in which poetry and music were closely intertwined. During the same period, the first examples of music integrating with the performing arts began to emerge in Shusha. In particular, theatrical performances staged with the accompaniment of ghazals and maqams laid the foundations of Azerbaijan's tradition of musical theatre. The musical production staged in 1897, based on Fuzuli's *Leyli and Mecnun* and led by Nəcəf bəy Vəzirov and Abdurrahim bəy Hagverdiyev, was one of the significant artistic events of the era. The young Üzeyir Hacıbeyli, who appeared on this stage, later emerged as a composer who would shape the course of Azerbaijani classical music in the years to come. Hacıbeyli's opera *Leyli and Mecnun*, composed in 1908 and staged at the Tagıyev Theatre, went down in history as a first not only for Azerbaijan but for the entire Eastern world. This work, based on the mugam tradition, presented a structure

that synthesised both Eastern musical traditions and European opera techniques. Works composed by the composer in subsequent years, such as *Aslı and Kerem*, *Shah Abbas and Hurşid Banu*, and *Rüstem and Zöhrab*, represent a continuation of this approach (Huseynaliyev, 2021).

By the 20th century, classical Azerbaijani music had developed further, becoming enriched not only in the field of opera but also through significant works in genres such as symphony, musical comedy, ballet, and others. Üzeyir Hacıbeyli's operetta *Arşın Mal Alan*, which is frequently staged in Turkey today, has gained worldwide recognition due to its melodic richness and universal themes; having been translated into more than 40 languages, it has enabled Azerbaijani musical culture to gain international visibility. Operas by other composers of Hacıbeyli's generation, such as Müslüm Magomayev's *Şah İsmail* and Zülfikar Hacıbeyov's *Âşık Garip*, demonstrate how national music has been reflected in the performing arts. The early 20th century is regarded as a period in which the influence of modernisation and institutionalisation was particularly strong in Azerbaijani music. From 1920 onwards, the establishment of state-supported musical institutions in Azerbaijan—such as symphony orchestras, opera and ballet theatres, and conservatories—became one of the most important factors supporting the development of classical music production. During this period, Müslüm Magomayev's opera *Nergiz* pioneered the classical musical stage form, while Efrasiyab Badalbeyli's work *Kız Kalesi* went down in history as the first national ballet (Cafer, 2015).

From the mid-20th century onwards, the revival in music continued to exert its influence; as a result, Azerbaijani classical music was no longer confined to a local sphere but began to make its mark on the international stage. The staging of Kara Karayev's ballet *The Seven Beauties* at the Bolshoi Theatre in Moscow in 1952, along with performances of Fikret Amirov's opera *Sevil*, his *Nizami* symphony, and ballets such as *A Thousand and One Nights* and *Kurd Ovshari* in major venues around the world, constituted some of the most significant developments in this context. During the same period, composers such as Cövdet Hacıyev, Soltan Hacıbeyov, Aşraf Abbasov, and Niyazi expanded the classical music repertoire by producing works in genres such as symphony, ballet, and symphonic poem. The synthesis of the Western 12-tone system, as applied by Karayev in his Third Symphony and Violin Concerto, with traditional Azerbaijani music is regarded as the first example of Azerbaijani dodecaphonic music (Cafer, 2015).

1.3.4. Azerbaijani Jazz Music

As is well known, jazz is a unique art form that offers a wide range of creative possibilities in terms of both performance techniques and form, as well as style. Originating in the United States in the late 19th century and inspired by the folk motifs of African-American communities, this musical genre was initially embraced throughout the US and subsequently gained rapid acceptance in Europe as a distinctive musical movement. The rapid spread of this genre, which has become a fundamental component of many cultures, is largely attributed to its emotional expressive power and improvisational nature. Since Azerbaijani traditional music is also based on improvisation, it did not take long for it to converge with jazz, which shares similar characteristics. Owing to this common ground, a natural convergence—or rather, a synthesis—between Azerbaijani mugam and Afro-American jazz emerged. This musical synthesis was first reflected in the works of composers such as Tofiq Quliyev but was further developed through the creative approach of jazz pianist Vaqif Mustafazade. Through Mustafazade's work, a strong connection was established between jazz—a genre characterised by improvisation—and mugam, leading to the emergence of a unique genre known as "jazz-mugam" (Jafarova, 2025).

Azerbaijani jazz, which experienced its golden age during Mustafazade's era, continued to exert its influence in subsequent periods and has maintained its popularity to the present day. In the 2000s, the expansion of international jazz events in Baku and the establishment of the Baku Jazz Centre facilitated the institutionalisation and wider dissemination of jazz culture. In particular, the Baku Jazz Festival, organised under the leadership of Rain Sultanov since 2005, gained prestige through the participation of internationally renowned artists. Featured in international media outlets such as Euronews, the festival achieved a respected position among global jazz festivals by 2006 and has hosted more than 200,000 spectators annually. In addition, Azerbaijani jazz artists such as Aziza Mustafa Zadeh, Rain Sultanov, Amina Figarova, Isfar Sarabski, and Shahin Novrasli have contributed to the global recognition of Azerbaijani jazz through their achievements on international platforms such as the 2007 Montreux Jazz Festival (Azerbaijan Ministry of Culture, 2011). These developments have enabled Azerbaijani jazz to secure a unique and respected position on the international music scene by both preserving its traditional musical heritage and integrating with modern jazz practices.

2. Azerbaijan'a Music Tourism Potential

2.1. Major Venues and Centres in the Music Sector in Azerbaijan

Baku, the capital of Azerbaijan, stands out as one of the country's most established and comprehensive cultural and artistic centres. In addition to being the country's political and administrative centre, Baku also serves as a major hub for various art forms, including music, theatre, literature, and the visual arts. Having produced many significant artists, particularly in the field of music, throughout history, the country holds an important position among the nations of the world due to its rich musical culture. Although the origin of the saying "If the world were an orchestra, Azerbaijan would be its conductor" is unknown, its frequent use today can be seen as a reflection of Azerbaijan's musical standing in public perception. In Baku, there are sufficient institutional structures, concert halls, and centres to enable professional performers to present traditional Azerbaijani music, Western classical music, pop music, and other genres. Detailed information on these facilities is provided below.

2.1.1. The Muslim Magomayev Azerbaijan State Academic Philarmonic Hall

The building of the Azerbaijan State Academic Philharmonic was constructed between 1910 and 1912 as part of the "Summer Building for Public Meetings" project. Following the establishment of Soviet rule in 1920, various musical ensembles, orchestras, and music enthusiasts who had previously operated separately were brought together in this building. Shortly after the establishment of Philharmonic societies in other republics of the Soviet Union, on 25 May 1936, the existing building in Azerbaijan was officially granted Philharmonic status. Following extensive restoration work carried out between 1936 and 1937, on 11 August 1937, in accordance with Resolution No. 5021 of the Council of People's Commissars, a proposal was submitted to the Central Committee of the Communist Party of Azerbaijan to name the State Philharmonic after Müslüm Maqomayev, an Honoured Artist and composer of Azerbaijan, in order to preserve his legacy, and this proposal was subsequently approved. The building, which was closed for restoration in 1996, was reopened to the public eight years later, on 27 January 2004. The opening ceremony was attended by President Ilham Aliyev, the then Minister of Culture Polad Bülbüloğlu, and the world-renowned cellist Mstislav Rostropovich. Today, major musical ensembles such as the Azerbaijan State Symphony Orchestra, the State Chamber Orchestra, the State Folk Instruments Orchestra, the State Song and Dance Ensemble, the State Dance Ensemble, the State Choir, the State String Quartet, and the State Piano

Trio operate under the roof of this building (Azerbaijan State Academic Philharmonic, 2025).

In 2017, the Azerbaijan State Philharmonic was granted "Academic" status in the name of Müslüm Maqomayev, further strengthening its institutional structure. The Philharmonic building currently houses two large halls: a summer hall with a capacity of 1,100 and a winter hall with a capacity of 610. Since their establishment, these halls have hosted numerous international festivals, including the Üzeyir Hacıbeyli Music Festival, the Mstislav Rostropovich Festival, and the Karayev Music Festival (Azerbaijan State Philharmonic Hall, 2025).

2.1.2. International Mugham Center

In August 2005, a significant development took place with the aim of supporting the development of mugham music, one of Azerbaijan's most important musical traditions. The foundation stone for a new building to operate under the concept of the International Mugham Center was laid by the President of the Republic of Azerbaijan, Ilham Aliyev, his wife Mehriban Aliyeva, and the Director-General of UNESCO, Koichiro Matsuura, following an initiative led by Mehriban Aliyeva, President of the Heydar Aliyev Foundation, UNESCO and ISESCO Goodwill Ambassador, and Member of the National Assembly. Featuring a modern architectural design with a distinctive form reminiscent of the components of the tar—considered the most prominent traditional instrument of Azerbaijan—the International Mugham Center was officially opened on 29 December 2008. This structure, with its unique form, represents the integration of Azerbaijan's traditional musical heritage with modern architecture. The construction of the Mugham Center utilised contemporary technologies, while the building's technical equipment was sourced from Italy, Austria, France, and Turkey. It is evident that this centre has been designed not merely as a national institution but as a cultural institution meeting international standards.

The International Mugham Center serves an important function not only in the preservation and promotion of traditional mugham art but also as one of Azerbaijan's cultural windows to the world. Located in one of Baku's most prestigious areas, within the Seaside National Park, the centre hosts both local and foreign artists. As such, it has been designed not only as a national cultural institution but also as one that meets international standards. The building includes a 350-seat concert hall hosting international events featuring both local and foreign artists, as well as educational spaces, music archives, and a sound recording studio (International Mugham Center, 2025).

This building, which also hosts events such as the International Mugham Festival and the International Mugham Competition, has become a centre that

contributes to the promotion of traditional Azerbaijani music worldwide, while also showcasing modal music traditions from other cultures. In light of the centre's successful activities, the opening of the Ağdam Mugham Center—Azerbaijan's second Mugham Center, established with the support of the Heydar Aliyev Foundation in Ağdam, one of the regions reclaimed following the Karabakh victory—was conducted by President Aliyev on 10 May 2025.

2.1.3. Haydar Aliyev Cultural Center

Located in Baku, the capital of Azerbaijan, the Heydar Aliyev Cultural Centre is regarded as one of the most celebrated examples of contemporary architecture, not only in Azerbaijan but also among the world's modern architectural masterpieces. Designed by the world-renowned Iraqi-born architect Zaha Hadid, the centre was conceived following an international architectural competition held in 2007. Its opening ceremony took place on 10 May 2012, the anniversary of Haydar Aliyev's birth, and it was officially opened to the public in 2013. With its aesthetic and striking design, this building is regarded not only as a cultural centre but also as a symbol of Azerbaijan's aesthetic sensibility, its vision of modernisation, and the importance it places on the arts. Hosting numerous national and international art and cultural events, the building also stands out as one of the first destinations for foreign tourists visiting Azerbaijan (Zaha Hadid Architects, 2013).

The Heydar Aliyev Cultural Centre has secured its place in modern architecture as a structure that transcends classical architectural conventions through its aesthetic design. With its fluid lines rather than sharp corners, the structure adopts a softer, organic form not found in traditional architectural examples. Boasting a total usable area of 101,801 square metres, the building offers a spacious and cohesive atmosphere in both its interior and exterior design, characterised by simple white tones. The interior of the centre is exceptionally spacious and incorporates a wide range of event areas. Within this space, the centre includes a 980-seat auditorium, a 1,556-seat multi-purpose hall suitable for concerts, meetings, and conferences, a 2,500-square-metre exhibition hall, an artificial lake, and more (DIA Holding, 2014).

2.1.4. Baku Crystal Hall

Located on the shores of the Caspian Sea in the capital city of Baku, Baku Crystal Hall is one of the most significant complexes reflecting the country's vision for modern architecture as well as its vibrant cultural and artistic life. The construction of this building was initiated following Azerbaijan's victory in the 2011 Eurovision Song Contest. Specifically, as the contest rules require the

winning country to host the event the following year, and as there was no venue in Baku with sufficient capacity, it was decided to construct a new facility to accommodate the event. Designed by the German architectural firm GMP International GmbH, the venue was completed in a record-breaking eight months by Alpine Bau Deutschland AG and opened on 7 May 2012. With a total floor area of 30,958 square metres, the venue has a fixed seating capacity of 12,000 and, together with a standing capacity of 15,000, can accommodate up to 27,000 people (Baku Crystal Hall, 2025).

This building, which stands out architecturally for its crystalline form, is designed to offer a striking visual display at night thanks to its façade fitted with 12,000 LED lights. During the Eurovision Song Contest final, these LEDs illuminated the colours of each country's flag prior to the performance of that country's representative. Since its opening, Baku Crystal Hall has hosted numerous major international events, including the 2012 Eurovision Song Contest, the 2015 European Games, the 2016 Chess Olympiad, and the 2019 European Youth Summer Olympic Festival. In the field of culture and the arts, it has hosted memorable concerts by global artists such as Jennifer Lopez, Shakira, Rihanna, and Christina Aguilera. These events have elevated the venue beyond merely a sports and cultural complex, transforming it into a key instrument of Azerbaijan's cultural diplomacy on the international stage (AZERTAC, 2012).

2.1.5. Baku Congress Center

The Baku Congress Center is located in the heart of Baku, directly opposite the Heydar Aliyev Cultural Center. Designed by the Austrian architectural firm Coop Himmelb(l)au, construction of this modern event complex—recognised as the largest congress centre in the Caucasus region—began in 2013, and it was officially opened on 29 April 2015. Covering a total area of 46,000 square metres, this building is one of the most significant examples of contemporary architecture in Azerbaijan, alongside the Heydar Aliyev Cultural Center and Baku Crystal Hall. In addition to the main auditorium, which seats 3,500 people, the centre includes 17 separate conference rooms with a total capacity of 2,500, a restaurant seating 1,500, a 1,800-square-metre foyer area, and a large 405-square-metre multimedia screen. Thanks to the movable floor system developed by Gala Systems, the main hall can be adapted to suit different types of events within 15 minutes.

Since its opening, the centre has hosted numerous major international conferences and meetings and frequently organises concerts featuring renowned Turkish artists. The Baku Convention Centre was accepted as a full member of the International Congress and Convention Association (ICCA) in 2019, and this

membership serves as a testament to the centre's status as a preferred venue for global events that meet international standards (Baku Convention Centre, 2025).

2.2. Music Events Held in Azerbaijan

2.2.1. Üzeyir Hacıbeyli Music Festival

The Üzeyir Hacıbeyli Music Festival (Musiqi Günü), held in Azerbaijan, has been organised annually on 18 September—the composer's birthday—since 1995, in accordance with a decree signed by the President of Azerbaijan, with the aim of preserving the memory of Üzeyir Hacıbeyli. The day on which this festival, named after Üzeyir Hacıbeyli—recognised as the "father of Azerbaijani music"—began has been designated as "Music Day" in Azerbaijan, and on this date every year, numerous events and concerts in the field of classical music are organised. Celebrated as a local event until 2008, the festival began operating as an international event in 2009 with the support of the Ministry of Culture of Azerbaijan and the Heydar Aliyev Foundation. The festival's programme comprises not only concerts but also seminars, masterclasses, academic conferences, and various artistic events. These events have featured not only Azerbaijani artists but also musicians from all corners of the world. Representatives from the music scenes of countries such as the USA, Norway, France, Austria, Germany, Turkey, Greece, Kazakhstan, Bulgaria, Hungary, Russia, Japan, South Korea, and Georgia—including artists such as Peter Laul, Haqay Shaham, and Katiya Buniatishvili—have performed, and international orchestras such as the German New Munich Philharmonic Orchestra and the Tbilisi Festival Choir from Georgia have also taken part (Heydar Aliyev Foundation, 2024).

The concerts at the festival, which lasts for around 10 days, take place at venues such as the Azerbaijan State Philharmonic, the Heydar Aliyev Palace, the Mugham Centre, and the Baku Music Academy. The concerts held in Baku and other cities during the festival also appeal to music-loving tourists from both within the country and abroad.

2.2.2. Baku Jazz Festival

By the 20th century, Azerbaijan—a country characterised by significant musical diversity—had rapidly integrated jazz into its cultural fabric, thereby paving the way for the emergence of the concept of "Azerbaijani Jazz." Developments in this musical field were not limited to local performances; indeed, the inaugural Baku International Jazz Festival in 2005 established itself as one of the most significant events in the genre. Organised with the support of the Azerbaijan Ministry of Culture and Tourism, the Azerbaijan Cultural

Foundation, and the magazine “Jazz Dünyası,” the festival has hosted—and continues to host—numerous jazz artists from around the world. Offering a comprehensive cultural and artistic platform through education-focused seminars, masterclasses, jazz for children, competitions, jazz-themed exhibitions, and talks, the festival attracts attention with its multifaceted programme. One of its key objectives is to preserve Azerbaijan’s jazz heritage and ensure that this tradition is sustained in a modern form. At the same time, with contributions from artists from different countries, the groundwork is laid for the development of intercultural dialogue, thereby fostering international cultural exchange through music.

As part of this festival, which takes place annually, concerts by leading jazz musicians are held at prestigious venues such as the International Mugham Centre, the Baku Philharmonic Hall, the Heydar Aliyev Palace, and the Baku Jazz Centre. The Baku Jazz Festival’s growing importance within the international jazz community culminated in its membership of the European Jazz Network (EJN) in 2016. This development has not only strengthened the organisation’s visibility on the European stage but has also paved the way for Baku to become one of the key centres for jazz music (Baku Jazz Festival, 2025).

The 20th anniversary of this festival, which has been held annually since 2005, will be celebrated in October 2025. The festival will feature internationally renowned artists such as the American jazz harmonica virtuoso Gregory Maret, who has been honoured with the prestigious Grammy Award, as well as representatives of Brazilian jazz music such as Eloiza Lourenço, Dutch jazz pianist Mike del Ferro, the Joseph Chetrit Ensemble—which blends traditional Middle Eastern melodies with a modern jazz approach—the Michael Schiefel Group, a leading representative of modern vocal jazz, and prominent figures from the Italian jazz scene such as Federico Casagrande and Fulvio Sigurtà. Legends of jazz such as Al Jarreau, Joe Zawinul, Chick Corea, Herbie Hancock, Joshua Redman, Charles Lloyd, and Diana Krall have also been honoured guests at the festival. The official website of the Europe Jazz Network (2019), one of the most important resources on jazz music, includes the following statements about the Baku Jazz Festival: "The Baku Jazz Festival has been held since 2005. Founded by the outstanding Azerbaijani musician Rain Sultanov, the festival has proven itself to be one of Azerbaijan’s largest events for over a decade. The festival is featured on the Euronews channel and is frequently covered in the news. In 2006, the festival joined the ranks of the world’s largest jazz festivals and is attended by over 20,000 spectators every year. Whilst the Baku Jazz Festival traditionally represents a wide range of musical genres, it reinforces its status as a symbol of

Azerbaijan's high culture through the active participation of jazz enthusiasts and audiences."

2.2.3. Gabala Music Festival

Aiming to promote Azerbaijan's multi-faceted musical culture both nationally and internationally, the Gabala International Music Festival is a distinguished artistic platform that brings together contemporary and traditional musical genres. Launched with the support of the Heydar Aliyev Foundation and the initiative of Prof. Farhad Badalbeyli, Rector of the Baku Music Academy, and the renowned conductor Dmitri Yablonski, the festival attracts significant international attention each year. First held in 2009, the festival is a major musical event that brings together world-renowned artists in the fields of classical, jazz, and folk music. The city of Gabala, situated at the foot of the Caucasus Mountains and renowned for its historical and natural beauty, stands out as one of Azerbaijan's most important tourist destinations. The primary aim of the festival is to support Azerbaijan's classical music tradition while fostering interaction with world music and strengthening cross-cultural communication. Unlike concerts held in traditional concert halls, the festival's performances take place in open-air settings, allowing art to blend seamlessly with nature. This is not merely an aesthetic choice but also a distinctive feature from the perspective of music tourism. The festival programme is not limited to concerts alone but is enriched by events across various disciplines, such as competitions for young pianists, mugham, and jazz evenings (Heydar Aliyev Foundation, 2025).

As mentioned above, the First International Gabala Music Festival took place in 2009, and as part of the festival, musicians from 16 different countries around the world, including the United States, Poland, Mexico, Spain, and Russia, performed in Gabala. The most recent edition of the festival, which has been held annually ever since, took place in 2023 as the 12th International Gabala Music Festival. The Gabala International Music Festival has also made a significant contribution to Azerbaijan's tourism sector. During the festival periods, hotel occupancy rates reached 90 per cent, and both local and foreign tourists flocked to the region. This festival has not only enhanced Gabala's tourist appeal and contributed to the regional economy but has also played a pioneering role in expanding the cultural infrastructure, leading to the construction of new facilities such as concert halls, music schools, and arts centres (Gabala Regional Executive Authority, 2025).

2.2.4. International Mugham Festival

Following the inclusion of the art of mugham on UNESCO's list of the "Intangible Cultural Heritage of Humanity" in 2003, efforts to promote this tradition in Azerbaijan began to extend beyond a local scope to the international level. In this context, in March 2009, with the support of the Ministry of Culture, the Azerbaijan Composers' Union, and the Heydar Aliyev Foundation, the International Mugham Festival was organised under the name "The World of Mugham", marking the official launch of efforts to preserve and promote mugham culture. In its very first year, the festival brought together representatives of traditional music from all corners of the world and attracted attention as a week-long celebration of traditional music. Consequently, the idea of repeating this festival in subsequent years was supported by both audiences and participants. Throughout the festival, seminars on the history of mugham were held, and performances of various formats—such as classical renditions and symphonic mugham—were staged, emphasising that mugham is a significant cultural asset not only for Azerbaijan but for world culture as well. At the festival's opening ceremony on 18 March at the Heydar Aliyev Palace, attended by many renowned musicians, Azerbaijan's President Ilham Aliyev and UNESCO Director-General Koichiro Matsuura were also present; they delivered speeches highlighting the festival's importance and the special cultural value of mugham for the Azerbaijani people (Halk newspaper, 2009).

The festival, which has been held every two years since 2009, attracts representatives from more than 40 countries each year. As part of the festival, an International Mugham Competition is also organised. Numerous artists from countries with deep-rooted mugham traditions—including Azerbaijan, Iran, Turkey, Uzbekistan, Tajikistan, Iraq, Egypt, and China—have participated in these competitions, allowing audiences to experience a rich musical diversity reflecting different interpretations of mugham. The organisation of symposia under the title "Eastern Music" alongside the festival further demonstrates the event's contribution to the academic field. The seventh edition of this still-popular musical celebration is planned to take place in June 2025 under the title "VII International Mugham Festival" (International Mugham Festival, 2025).

2.2.5. Zhara Music Festival

As can be seen from the examples above, a sufficient number of festivals and competitions are organised in Azerbaijan in the field of classical and traditional music. In the realm of modern pop music, however, the Zhara Music Festival, held in Azerbaijan in recent years, has come to the fore. The Zhara Music Festival, which holds a significant place among such events, is a large-scale, five-

day festival held annually on the shores of the Caspian Sea. Founded in 2016 by the artist Grigory Leps, the producer Sergey Kozhevnikov, and the Azerbaijani artist and businessman Emin Ağalarov, the festival has quickly become one of the most well-attended music events among the Commonwealth of Independent States (CIS) countries. Centred on pop, rock, and electronic music, this event has not only provided an international musical platform but has also become an organisation that enhances Azerbaijan's international visibility and supports culture-based tourism. The Zhara Festival hosts approximately 10,000 music lovers each year, making a significant contribution to the country's economy (Yeni Azərbaycan, 2018).

Another notable aspect of the event is that the festival is not limited to musical performances but also brings together figures from the media, politics, and the business world. For example, high-ranking officials such as Dmitry Peskov, Press Secretary to the President of the Russian Federation, and Hollywood star Steven Seagal were among the festival's guests of honour (AZƏRTAC, 2016).

The Zhara Music Festival was first held in Baku on 9 July 2016; having generated significant attention in its inaugural year, the festival continued to grow in subsequent years, with an increasing number of participants and a rising calibre of artists. Held annually in Baku until 2018, the festival featured prominent names from the pop and rock genres, including Philip Kirkorov, Polina Gagarina, Valeriya, Dima Bilan, Vera Brezhneva, Grigory Leps, Emin Agalarov, Mustafa Sandal, Monatik, Zivert, Nyusha, Outlandish, Olga Buzova, Leonid Agutin, Vremya i Steklo, Ivanushki International, Maruv, Artik & Asti, Alexander Panayotov, Albina Janabaeva, Slava, Rodriguezzz, Julianna Karaulova, and Elina Chaga. During the festival, hotels along the Caspian coast, particularly those near the event venue, reached maximum occupancy (Yeni Azərbaycan, 2018).

Thanks to the success it achieved in its first three years, the festival has become an international brand and is no longer confined to Azerbaijan's borders. The decision to hold the Zhara Festival in Dubai, United Arab Emirates, in 2024 is regarded as one of the key steps towards its transformation into a global event.

2.2.6. Kharıbülbül Music and Folklore Festival

Before discussing the festival's programme, it is necessary to mention the city of Shusha, where the festival takes place. Founded in 1752 by Penahali Khan, the Khan of Karabakh, Shusha is a city of historical and cultural significance located in western Azerbaijan; it also possesses a distinctive and almost mystical beauty due to its high altitude. Throughout history, these lands have nurtured many important figures in both literature and music, earning a reputation as the "cradle" of Azerbaijani musical culture and the "conservatoire of the Caucasus." Cabbar

Qaryağdıoğlu, Qurban Pirimov, Bülbül, Seyid Şuşinski, Xan Şuşinski, Üzeyir Hacıbeyov, Raşid Behbudov, Niyazi, and Fikret Amirov, among many others, are among the most prominent figures in the field of music who were born and raised in the city of Shusha. This city, which holds particular importance as a centre of the mugham tradition, has historically functioned as a regional hub for trade and culture, fostering interaction between Eastern and Western musical traditions and acting as a key link between East and West. Designated as the "Cultural Capital of the Turkic World" in 2023, the city is situated at an altitude of approximately 1,600 metres above sea level and is notable for its rich flora and fauna, mountain trails, waterfalls, and healing springs.

Located to the south of Shusha, Cıdır Düzü occupies an important place in the city's social and cultural life due to its natural beauty and its role as a venue for cultural events. Throughout history, horse races, festivals, and various sporting events have been held here, and the khans entertained their most distinguished guests at this location. In 1989, a festival named Kharıbülbül was organised on this plain to commemorate the 100th anniversary of the birth of the Azerbaijani khanende (mugham singer) Seyid Şuşunski. The second edition was held in 1990 and the third in 1991; cultural groups from Lithuania, Kazakhstan, Kyrgyzstan, Belarus, Turkey, the Netherlands, Germany, Israel, the United States, and Australia participated in this festival. Due to the escalation of tensions and the occupation in Karabakh in 1992, the fourth edition of the festival could only be held 29 years later. In keeping with tradition, the main stage of the Kharıbülbül Festival, held in 2021 following the second Karabakh victory, was once again located on Cıdır Plain. The fifth edition of the festival, held in 2022, returned to its international format; alongside Azerbaijani music ensembles, the festival featured music groups from countries such as Turkey, Tunisia, Mali, Pakistan, Georgia, Uzbekistan, Egypt, and France. The festival takes its name from the Kharıbülbüle, an endemic orchid species known as *Ophrys caucasica*, which grows exclusively in the city of Shusha in Azerbaijan's Karabakh region. Known as "Xarıbülbül" in Azerbaijan due to its resemblance to a nightingale, this flower holds great significance for the people of Azerbaijan and symbolises peace and love (Xarıbülbül Festival, 2022).

3. The Impact of Music on Tourism

3.1. Festival Tourism

Conceptually, the term *festival* refers to events organised to sustain values inherited from the past and to popularise new ones within societies. Enriched by the vibrant texture of art and culture, these events bring people together by breaking the monotony of everyday life. Held at regular intervals and structured

within a certain framework, such organisations include various activities that facilitate social bonding and strengthen the sense of unity within society.

In their study, Gibson and Stewart (2009) state that certain fundamental criteria must be met for an event to be considered a "festival." First, the inclusion of the term "festival" in the name of the event, its reflection of a specific culture or community, and its repetition at regular intervals are among the most essential criteria. Additionally, the event should provide a special gathering space for society, allowing individuals to step outside their daily routines. From this perspective, festivals are not merely entertainment-oriented events but also dynamic platforms in which cultural values develop and social identity is expressed in a positive manner.

Festivals can be organised both locally and internationally. Particularly in the case of international festivals, the concept of "festival tourism" emerges. Festival tourism is defined as a specific type of tourism that encompasses travel undertaken by individuals with the intention of attending festivals. Since the festival itself constitutes the primary motivation for travel, this distinguishes festival tourism from other forms of tourism. Participants gain both entertainment and cultural experiences through festivals while also having the opportunity to establish social connections with different communities. In this respect, festival tourism is considered a branch of event tourism and a subcategory of cultural tourism (Getz, 2008).

Festivals also play an important role in promoting and preserving cultural heritage. On the one hand, they increase interest in venues such as museums, galleries, and historical sites, thereby contributing to their sustainability. On the other hand, they may carry the risk of reshaping cultural authenticity according to tourist demands. While infrastructure developments associated with festivals can accelerate regional development, they may also lead to deterioration and degradation due to intensive use and insufficient maintenance (Garcia, 2018).

In conclusion, from a societal perspective, festival tourism facilitates social interaction and cultural exchange while also making a significant contribution to the economy. However, potential negative impacts—such as traffic congestion, price increases, noise, and security issues during festival periods—should also be taken into consideration, and well-planned organisations should be implemented accordingly.

3.2. Economic and Social Impacts of Music Events on Tourism in Azerbaijan

As can be understood from the examples above, festival tourism creates multidimensional economic and social impacts in the destinations where it is organised. From an economic perspective, festivals increase the revenues of local businesses, create employment opportunities, and contribute to the diversification of tourist expenditures. In regions where festivals take place, a noticeable revitalisation is observed, particularly in the food and beverage, transportation, and souvenir sectors. From a social perspective, festivals encourage cultural participation among local communities, strengthen social cohesion, and reinforce local identity and a sense of belonging.

Globally, some countries have achieved and sustained significant success in festival tourism thanks to their long-standing experience in organising such events. Azerbaijan, which is the main focus of this study, is among the countries where festival tourism has been developing relatively recently. Although many festival organisations in Azerbaijan began in the 2000s, the country and its society have demonstrated rapid adaptation to these developments both socially and economically. In recent years, event tourism in Azerbaijan has become one of the fastest-growing segments of the tourism industry. Through events such as sports competitions, festivals, music contests, and tourism fairs, tourist interest in the country has increased annually, making event tourism a significant component of the national economy (Alirzayev, 2011). With numerous festivals such as the International Uzeyir Hajibeyli Music Festival, the Gabala Music Festival, the Kharı Bülbül Music and Folklore Festival, and the Baku Jazz Festival, Azerbaijan has strengthened its position in festival tourism. Moreover, hosting the Eurovision Song Contest in Baku in 2012 marked a peak in Azerbaijan's recognition and prestige on the international events stage.

In his study, Murad Ismayilov (2012) noted a dramatic increase in interest in Azerbaijan following the country's victory in the Eurovision Song Contest in 2011. In this context, Google search queries related to Azerbaijan increased eightfold within one month, while searches related to Baku doubled. According to *Breaking Travel News*, interest in Azerbaijan on TripAdvisor increased by more than 4000% after the Eurovision victory. During May 2012, when Baku hosted the Eurovision final, approximately 7,000 international spectators visited the city within one week, representing the most diverse and highest number of tourists recorded up to that time.

Table 3.1 Number of international tourists visiting Azerbaijan between 2005 and 2024.

Year	Number of International Tourists
2005	693.000
2006	682.000
2007	732.000
2008	1.043.000
2009	1.005.000
2010	1.280.000
2011	1.562.000
2012	1.986.000
2013	2.130.000
2014	2.160.000
2015	1.922.000
2016	2.044.000
2017	2.454.000
2018	2.635.000
2019	3.170.000
2020	796.000
2021	792.000
2022	1.602.000
2023	2.086.000
2024	2.626.700

Source: State Statistical Committee of Azerbaijan

Based on the reports of the State Statistical Committee of Azerbaijan, the table above presents the number of tourists visiting Azerbaijan by year. As can be observed, there has been a significant increase in tourist arrivals since 2008. In line with the information provided in the second section of this study, it is noteworthy that many international music events in Azerbaijan also began after 2008. This increase can largely be attributed to the growing popularity of Baku as a tourist destination. However, one of the main drivers of this attraction has been music events held in Azerbaijan, particularly the Eurovision Song Contest. With the declaration of 2011 as the "Year of Tourism" and the increase in related investments, tourism activity expanded not only in Baku but also in other regions. New hotels, tourism complexes, and travel agencies were established, and the number of five-star hotels exceeded 35. These developments also acted as a driving force for regional development.

Having gained significant momentum in tourism, Azerbaijan experienced a major slowdown in tourism activities during the COVID-19 pandemic in 2020 and 2021, as was the case worldwide. The cancellation of international events and travel restrictions negatively affected festival tourism, leading to a noticeable

decline in the number of foreign tourists. This downturn highlights the fragile nature of event-based tourism.

In light of all these data, it can be observed that Azerbaijan has undergone a significant development process in festival-based music tourism. Music events, which gained momentum particularly after the 2000s, have played an active role in the country's tourism strategies, supporting both economic development and cultural dynamism. The increase in international events has strengthened the destination image, while the participation of local communities has contributed to social integration. In this context, the case of Azerbaijan provides a noteworthy model for observing the multidimensional benefits of music tourism in developing countries.

4. Conclusion

The findings obtained within the scope of this study reveal the impacts of music festivals on Azerbaijan's tourism sector from multiple perspectives. Based on the data covering the 2005–2024 period, it is observed that music festivals organised in Azerbaijan have significantly contributed to increasing tourism revenues and strengthening the country's international image. These festivals have evolved beyond being mere cultural events into strategic tools that support the diversification of the national economy. In particular, the Eurovision Song Contest held in Baku in 2012 represents a turning point in festival tourism for Azerbaijan. According to the State Statistical Committee (2024), there was an approximately 25% increase in the number of foreign tourists in 2012, and the event generated nearly €500 million in economic impact, including contributions from the live audience.

In subsequent years, events such as the Mugham World Festival, the Zhara Festival, the Baku Jazz Festival, and the Gabala International Music Festival have increased the tourism appeal not only of the capital, Baku, but also of other regions, leading to occupancy rates of up to 85% in the accommodation sector and stimulating local economic activity. The fact that the total number of participants in these festivals exceeded 150,000 in 2019 clearly demonstrates the role of culture-based events in regional development.

Several structural and managerial factors can be considered influential in Azerbaijan's success in music festival tourism. These include the country's strategic position as a bridge between Europe and Asia, its rich musical heritage, the prioritisation of modern infrastructure investments, and supportive policies implemented by institutions such as the Heydar Aliyev Foundation and the Ministry of Culture.

However, some structural and external challenges affecting the development of festival tourism have also been identified. Issues such as seasonality, increasing regional competition, the effects of the Karabakh War, and fluctuations following the COVID-19 pandemic have made it difficult for Azerbaijan to maintain stable growth in its tourism sector despite its strong momentum. Nevertheless, the country has demonstrated a rapid recovery and continues to develop in festival tourism, as in many other areas.

As can be understood, music festivals have not only increased tourism mobility but have also enhanced Azerbaijan's visibility in the field of cultural diplomacy. By hosting international artists, these events have become effective tools for promoting cultural exchange and presenting Azerbaijan's multi-layered cultural identity to the global public. In particular, the promotion of the mugham tradition—listed as UNESCO's Intangible Cultural Heritage of Humanity—through festivals is considered an important achievement in terms of cultural sustainability.

In the future, more comprehensive strategies involving digitalisation, environmentally friendly practices, and greater participation of local communities will be required in order to expand festival-based tourism to wider audiences. Strengthening the infrastructure of festival areas, expanding transportation networks, and transferring promotional activities to international digital platforms will support further development in this field. In this way, Azerbaijan can transform festival tourism into a sustainable development tool by preserving its cultural heritage while adhering to the principles of sustainable tourism.

In conclusion, although music festival tourism in Azerbaijan has not yet reached its full potential, significant efforts are ongoing to achieve a stronger position in this field through innovative, participatory, and sustainable planning approaches.

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Chapter 5

Laughter Therapy in Post-Disaster Psychosocial Support: Theoretical Foundations and a Transformative Intervention Approach[1]

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Abstract

In this study, laughter therapy is approached as a holistic psychosocial intervention aimed at transforming an individual's physical and emotional world. It is emphasized that laughter is not merely an expression of emotion but also a therapeutic tool that can be consciously utilized. Laughter therapy offers a significant supportive approach, particularly for individuals coping with conditions such as trauma, stress, chronic illness, and social isolation. Findings from a study conducted with mothers following an earthquake and carried out under the TÜBİTAK 1001 Program indicate that laughter therapy increases psychological well-being and levels of hope while reducing trauma symptoms. Qualitative findings reveal that participants experienced emotional relief, perceived stronger social support, and developed improved coping skills.

Additionally, potential target groups beyond the current scope of laughter therapy applications were discussed. It was noted that, due to its structure based on nonverbal communication, it could serve as an accessible intervention for individuals with hearing impairments; for women who are victims of violence, it offers an approach that supports emotional safety, self-compassion, and group solidarity. In this context, laughter therapy is evaluated not only as a method aimed at symptom reduction but also as a complementary psychosocial support method that strengthens long-term psychological resilience.

Keywords: Laughter therapy, psychological well-being, hope, trauma, psychosocial support

[1] This study was prepared based on the findings obtained within the scope of the TÜBİTAK 1001 project titled "The Effect of Laughter Therapy Applied to Earthquake-Affected Mothers on Their Levels of Hope and Well-Being" conducted by Prof. Dr. Gökhan Gökdere, and particularly draws on the qualitative data collected during the project proces

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Afet Sonrası Psikososyal Destekte Gülme Terapisi: Teorik Temeller ve Dönüştürücü Bir Müdahale Yaklaşımı

Öz

Bu çalışmada gülme terapisi, bireyin fiziksel ve duygusal dünyasını dönüştürmeyi amaçlayan bütüncül bir psikososyal müdahale olarak ele alınmıştır. Gülmenin yalnızca bir duygu ifadesi değil, aynı zamanda bilinçli olarak kullanılabilen terapötik bir araç olduğu vurgulanmıştır. Özellikle travma, stres, kronik hastalık ve sosyal izolasyon gibi durumlarla baş eden bireyler için gülme terapisi önemli bir destek yaklaşımı sunmaktadır. Deprem sonrası annelerle yürütülen ve TÜBİTAK 1001 Programı kapsamında gerçekleştirilen çalışma bulguları, gülme terapisinin psikolojik iyi oluş ve umut düzeylerini artırdığını, travma belirtilerini ise azalttığını göstermiştir. Nitel bulgular, katılımcıların duygusal rahatlama yaşadığını, sosyal destek algılarının güçlendiğini ve baş etme becerilerinin geliştiğini ortaya koymuştur.

Bunun yanı sıra, gülme terapisinin mevcut uygulama alanlarının ötesine geçebilecek potansiyel hedef gruplar tartışılmıştır. İşitme engelli bireyler için sözsüz iletişime dayalı yapısı sayesinde erişilebilir bir müdahale olabileceği; şiddet mağduru kadınlar için ise duygusal güvenlik, öz-şefkat ve grup dayanışmasını destekleyen bir yaklaşım sunduğu belirtilmiştir. Bu çerçevede gülme terapisi, yalnızca semptom azaltmaya yönelik değil, aynı zamanda uzun vadeli psikolojik dayanıklılığı güçlendiren tamamlayıcı bir psikososyal destek yöntemi olarak değerlendirilmektedir.

Anahtar Kelimeler: Gülme terapisi, psikolojik iyi oluş, umut, travma, psikososyal destek

1. Introduction

Laughter is one of the most fundamental and universal expressions of human life. However, the idea that laughter can be used not only as an expression of emotion but also as a therapeutic tool has gained increasing importance in psychosocial support approaches in recent years. Laughter therapy is a holistic intervention approach that aims to transform an individual's physical and emotional world by using laughter as a deliberate method. This approach offers an important alternative particularly for individuals coping with challenges such as trauma, stress, chronic illness, and social isolation. Laughter therapy enables individuals to initiate a positive experience through the body regardless of their current emotional state. In this way, individuals are able to relax their body and mind immediately, without having to wait to feel like laughing.

The primary aim of this book chapter is to comprehensively examine the theoretical foundations of laughter therapy, its effects on different populations, and its implementation processes. In addition, the chapter presents the unique contribution of laughter therapy practices conducted with earthquake-affected mothers within the scope of the Scientific and Technological Research Council of Turkey (TÜBİTAK) 1001 project. In this context, laughter therapy is considered not merely as a "laughter exercise" but as a holistic intervention that strengthens key psychosocial resources such as hope, psychological resilience, and social connectedness.

2. Laughter Therapy: The Structure Of "Consciously Transforming Laughter into a Healing Tool"

Laughter therapy is a structured practice that goes beyond laughter as a natural emotional expression, enabling it to be used as a deliberate intervention tool. This approach aims for individuals to initiate laughter through bodily movement and breathing, regardless of their emotional state. In this way, laughter ceases to be merely an "emotion" and becomes a conscious behavior that supports the individual's physical and psychological well-being. Laughter therapy follows a group-based and staged structure (Kataria, 2011). These stages are designed to allow participants to safely initiate and sustain the "laughter experience" and to gradually calm down by the end of the session. The core components of the practice can be considered under the following headings.

Warm-Up and Boosting Group Energy: Clapping and Rhythmic Movements: At the beginning of the session, clapping and warm-up exercises help participants become physically activated. During this stage, clapping, rhythm, and movement create synchronized harmony within the group. Additionally, stimulating acupuncture points aims to prepare the body for laughter. This process,

accompanied by eye contact, music, and movement, facilitates participants' engagement in the session and strengthens group dynamics.

Deep Breathing: The Foundation of Physical Relaxation and Laughter: Breathing exercises are a central component of laughter therapy. Deep breathing exercises activate the diaphragm, supporting both physical and mental relaxation. Releasing breath through laughter enhances bodily relaxation while also sustaining the laughter itself. This stage enables participants to become aware of their bodies and breath, making laughter more sustainable.

Childlike Play: A Safe Space Triggering Spontaneous Laughter: The childlike play stage of laughter therapy is aimed at reducing participants' social anxiety and shyness. Through songs, games, and role-playing activities, individuals can experience "laughter without reason." This process helps decrease self-judgment and performance anxiety commonly encountered by adults in daily life, thereby fostering spontaneous laughter.

Laughter Exercises: Physically Initiating Laughter: This stage constitutes the core practical component of laughter therapy. Participants physically initiate laughter through yoga-based and playful laughter exercises. These exercises support individuals in connecting with positive emotions and enhance the sustainability of laughter. Laughter exercises also help participants move beyond the notion that "laughter must be natural," allowing them to experience laughter as a deliberate and conscious action.

Stretching and Physical Relaxation: Reducing Muscle Tension: Laughter therapy balances the process initiated by physical activation with stretching and relaxation. Neck, shoulder, and full-body stretches reduce muscle tension and enhance bodily awareness. This stage helps participants release stress accumulated in their bodies and contributes to making the session a more holistic experience.

Meditation: Mental Calmness Following Laughter: The final stage of the practice, meditation, completes the session as a whole. Focusing on breath and awareness, meditation enhances mental calmness and reinforces emotional balance. This stage supports participants in internalizing the laughter experience and carrying a sustainable sense of relaxation beyond the session.

Through the combination of the components outlined above, laughter therapy bridges physical activation and emotional regulation. The practice does not merely aim at inducing laughter; it enables participants to experience their bodies, breath, and group interactions together. This holistic structure is one of the key elements explaining the applicability and effectiveness of laughter therapy across different populations.

3. Effects of Laughter Therapy in Different Populations

In recent years, laughter therapy has been increasingly applied to different age groups, clinical populations, and individuals with specific conditions, attracting growing interest due to its psychological and physiological effects.

A review of the literature indicates that laughter therapy is not limited to supporting psychological well-being; it also has effects on multidimensional health indicators such as stress hormones, immune system markers, respiratory functions, pain perception, and quality of life.

For instance, in recent studies, Tanaka et al. (2018) examined 13 healthy adults (11 women and 2 men, aged 21 to 73) and found that repeated laughter therapy led to a progressive reduction in tension and anxiety scores, along with beneficial increases in vigor and tension-anxiety dimensions. They also reported that laughter therapy effectively decreased stress hormone levels, including ACTH and cortisol.

Bressington et al. (2019) applied laughter therapy to 27 adults aged 18–60 diagnosed with depressive disorder and observed that, compared to a control group (n=23) that received no intervention, the laughter therapy group (n=27) showed a statistically greater reduction in depression scores and improvements in mental health–related quality of life.

Lee and Lee (2020) demonstrated that a laughter program effectively reduced employment-related stress and enhanced subjective well-being among nursing college students. They further noted statistically significant improvements in psychological stress, salivary cortisol levels, and subjective happiness after the program compared to pre-intervention levels.

Özer and Ateş (2021) reported that laughter therapy applied to hemodialysis patients (n=33) resulted in significant reductions in pain levels and notable improvements in sleep quality. Kim et al. (2021) found that laughter therapy had a positive effect on reducing anxiety and stress in cancer patients (n=34).

Çelik and Kılınç (2022) found that laughter therapy applied to nurses (n=51) caring for patients diagnosed with COVID-19 during the pandemic reduced the nurses' perceived stress and burnout levels and was effective in enhancing their life satisfaction. Karakaş (2022) reported that laughter therapy administered to women with breast cancer (n=21) decreased their stress levels, alleviated both physiological and psychological symptoms, and improved their quality of life. Jang et al. (2022) observed that laughter therapy applied to patients with pulmonary tuberculosis (n=26) effectively improved lung functions, reduced physical symptoms and depression, and enhanced health-related quality of life.

Kotekar and Shinde (2023) focused on the psychological problems of adolescents with physical disabilities aged 13–19. The researchers found a statistically significant difference in post-test self-concept scores between the control group (n=30) and the experimental group (n=30), concluding that laughter therapy was highly beneficial for physically disabled adolescents. Öztürk et al. (2023) reported that laughter therapy reduced feelings of loneliness and enhanced psychological resilience and quality of life in older adults living in nursing homes (n=32). Allahyari et al. (2023) conducted a study with mothers of children admitted to psychiatric services (n=35) and found that laughter therapy was an effective intervention for reducing fatigue and anxiety in these mothers. Hirosaki et al. (2023) implemented a 12-week laughter therapy program for individuals with type 2 diabetes (n=21) and observed a decrease in hemoglobin A1c levels at the end of the program. Werdani (2023) demonstrated that laughter therapy could enhance individual and peer happiness outcomes in cancer patients (n=20) receiving treatment during the COVID-19 pandemic.

Uğur et al. (2025) reported that four laughter therapy sessions over two weeks in patients with hematologic cancers reduced pain and anxiety while improving sleep duration and quality. Akçin and Aslan (2025), in a randomized controlled trial with patients with type 2 diabetes, showed that laughter therapy lowered postprandial blood glucose, improved illness perception, and reduced perceived stress. Koca et al. (2025) found that six sessions of Laughter Yoga significantly alleviated postpartum depression symptoms, suggesting that Laughter Yoga and similar non-pharmacological interventions can be beneficial during the sensitive postpartum period.

Mottaghi et al. (2026) conducted a study with adolescent girls and concluded that laughter therapy is an accessible, non-pharmacological intervention supporting cardiorespiratory and metabolic health.

When the studies conducted across different populations are considered together, it becomes evident that laughter therapy produces multidimensional effects. Outcomes such as reductions in psychological symptoms, improvements in physiological indicators, enhanced social interactions, and increased quality of life indicate that the method aligns with a holistic health approach. Current findings suggest that laughter therapy can be regarded as a safe, feasible, and supportive intervention for diverse groups.

4. Effectiveness and Applicability of Laughter Therapy

Laughter therapy, considering its structural features, implementation methods, and participant experiences, represents an intervention approach with significant strengths in the field of psychosocial support. Findings reported in the literature,

along with practical application experiences, indicate that the method can be regarded as an accessible, sustainable, and complementary tool in both clinical and social contexts. This section examines the strengths and applicability of laughter therapy in terms of cost, accessibility, participant acceptance, group dynamics, and ethical considerations.

Low-Cost and Resource-Friendly Intervention: One of the prominent strengths of laughter therapy is that it does not require additional equipment, a specialized physical space, or advanced technological infrastructure. The basic requirements for implementation include a suitable group environment, a structured program, and guidance from the facilitator. This makes the method particularly feasible for community-based interventions in resource-limited settings and post-disaster contexts.

Ease of Implementation and Structured Flexibility: While laughter therapy sessions follow a specific structure, they offer adaptable flexibility according to the characteristics of the participant group. The presence of core components—such as clapping, breathing exercises, childlike play, laughter exercises, and meditation—ensures that the practice can be standardized, while the session duration, intensity of exercises, and group dynamics can be adjusted by the facilitator. This structured flexibility makes the method accessible for individuals of different age groups and varying psychosocial needs. Additionally, the absence of complex technical requirements supports facilitators in adopting and maintaining the practice.

High Participant Acceptance and Voluntary Nature: Due to its playful, enjoyable, and positive-emotion–focused design, laughter therapy is generally perceived by participants as a non-threatening intervention. This represents an important advantage, particularly for individuals who may be hesitant to engage in psychosocial support services.

Group-Based Structure and Support for Social Bonding: The group-based nature of laughter therapy represents another key strength of the method. Laughter and movements performed simultaneously within the group create a nonverbal experience of synchronization and shared participation among individuals. This fosters social bonding and reduces perceived loneliness. Particularly in trauma and post-disaster contexts, bringing together individuals who have experienced similar events serves as an important protective factor for psychological recovery. In this regard, the group structure of laughter therapy functions as a tool that contributes to the reconstruction of perceived social support.

No Requirement for Verbal Expression and Provision of an Emotionally Safe Space: An important advantage of laughter therapy is that participants are not required to verbally share their experiences. Through laughter, breath, and bodily movement, individuals can express their emotions indirectly. This feature creates a psychologically safer space, especially for those who are not yet ready to verbalize traumatic experiences. In this sense, laughter therapy can serve as a preparatory and supportive intervention, paving the way for deeper therapeutic approaches.

Low Risk of Side Effects and Ethical Applicability: Neither the literature nor practical experiences have reported serious side effects associated with laughter therapy. The practice progresses through natural bodily responses and is non-invasive, which enhances its safety. Additionally, adherence to voluntary participation, respect for participants' boundaries, and avoidance of coercive approaches are fundamental ethical principles. Within this framework, laughter therapy can be considered a safe intervention applicable across various psychosocial contexts, provided an appropriate ethical framework is maintained.

When the strengths and applicability of laughter therapy are considered together, it becomes evident that the method offers significant advantages as a complementary psychosocial intervention at both clinical and societal levels. Features such as low cost, high participant acceptance, group-based structure, and ethical applicability make laughter therapy suitable for use in diverse contexts.

5. Laughter Therapy in Post-Disaster Psychosocial Support: The TÜBİTAK 1001 Project Conducted with Earthquake-Affected Mothers

On February 6, 2023, Turkey experienced two major earthquakes: first, a 7.7-magnitude quake centered in Kahramanmaraş, followed by a 7.6-magnitude quake centered in Elbistan. As disturbing as the economic cost of the 2023 Kahramanmaraş earthquake—described as the "disaster of the century"—was the devastating impact on individuals' mental health. Disasters cause sudden, uncontrollable, and destructive changes in people's lives, leaving long-term psychological effects. In the post-earthquake period, mothers must cope simultaneously with their own trauma and the emotional and physical needs of their children. This multiple burden significantly challenges their psychological well-being.

The study titled 'The Effect of Laughter Therapy Applied to Earthquake-Affected Mothers on Their Levels of Hope and Well-Being' evaluated the effects of laughter therapy on hope and well-being in mothers following stress disorders after natural disasters such as earthquakes. The study was supported under the TÜBİTAK 1001 Program (Special Call for Earthquake Region Universities) and

was conducted in 2024–2025 in the provinces of Elazig and Malatya, which were affected by the earthquakes.

To assess the effects of laughter therapy on post-earthquake trauma symptoms, sustained hope, and psychological well-being, a pilot randomized controlled experimental design was used. The study sample consisted of volunteer earthquake-affected mothers who met the inclusion criteria for the provinces where the research was conducted. A control group with a pre-test/post-test design was used to compare outcomes.

During the implementation phase, intervention groups in each province participated in a 12-session laughter therapy program, with one session per week, and the collected data were analyzed. The findings indicated that laughter therapy significantly increased mothers' levels of psychological well-being and hope while reducing post-earthquake trauma symptoms. Quantitative results were supported by qualitative data, showing that participants experienced emotional relief, enhanced perception of social support, and strengthened coping skills.

The qualitative feedback obtained following the weekly group-based laughter therapy sessions was organized around the following themes:

Creating a Space for Myself: Participant mothers expressed that the sessions provided them, for the first time, a space "beyond their role as a mother." This theme is notable in terms of promoting self-care and awareness of individual needs.

Emotional Release and Relaxation: Many mothers reported that suppressed emotions surfaced during laughter therapy and that they experienced physical relaxation. Laughter was described as a safe means of emotional release.

Laughing Without Guilt: During the post-earthquake period, some mothers felt that laughing was "inappropriate." Through the therapy process, they experienced that it is possible to laugh without guilt. This theme reflects the process of allowing positive emotions after trauma.

Social Bonding and Reduced Loneliness: Coming together in a group with women who had similar experiences reduced mothers' sense of loneliness and strengthened their perception of social support.

Rebuilding Hope and Resilience: Participants stated that the laughter therapy sessions increased their hope for life and helped them feel stronger about the future. This finding indicates that laughter therapy serves not only as a source of immediate relief but also as a functional intervention for long-term psychological resilience.

These qualitative themes demonstrate that laughter therapy can play a complementary and empowering role in post-disaster psychosocial support services.

6. Beyond Current Practices: New and Potential Target Groups for Laughter Therapy

Laughter therapy interventions have predominantly been studied in the literature with clinical samples, chronic illness groups, and the general population. However, considering the structural features of the method, it also holds significant potential for groups that have been scarcely studied or not examined at all. This section goes beyond existing applications to discuss why laughter therapy may be suitable for new target groups and focuses specifically on two such groups. These suggestions are based not on quantitative claims of efficacy but on theoretical and practice-oriented insights derived from the structural, relational, and experiential characteristics of laughter therapy.

Individuals with Hearing Impairments: Laughter Therapy as a Nonverbal Communication–Based Intervention: One of the main challenges in providing psychosocial support to individuals with hearing impairments is the limitation of interventions that rely on verbal communication. In this context, an examination of the core components of laughter therapy reveals that the method largely relies on bodily movement, facial expressions, gestures, mimics, rhythm, and group synchronization. These features inherently make laughter therapy a nonverbal communication–based intervention.

Elements used in laughter therapy—such as clapping, rhythmic movements, eye contact, and simultaneous bodily participation—contain features that can enable individuals with hearing impairments to actively engage in the group process. Moreover, because laughter is a universal facial expression, emotional sharing can occur without the need for verbal language. In this way, laughter therapy provides a platform to support social interaction, group belonging, and shared experiences among individuals with hearing impairments.

Furthermore, the childlike play and imitation elements of laughter therapy can enhance bodily awareness for individuals with hearing impairments and help them experience a safe environment within the group. These characteristics suggest that the method can be adapted as an inclusive, accessible, and effective psychosocial support tool for individuals with hearing impairments. However, to fully explore this potential, future studies will require structured applications and systematic evaluations.

Women Survivors of Violence: Laughter Therapy in Building Emotional Safety and Group Solidarity: In psychosocial support processes with women survivors of violence, common challenges include a diminished sense of trust, suppressed emotions, and social withdrawal. In this context, therapeutic approaches that directly address traumatic experiences can be overwhelming for some individuals in the initial stages. Laughter therapy, however, can be considered a supportive

intervention that progresses through bodily relaxation and positive affect rather than focusing directly on trauma.

The structured yet playful and non-threatening nature of laughter therapy can provide an emotionally safer entry point for women survivors of violence. The simultaneous laughter experience within a group setting fosters connections based on similarity and equality without establishing hierarchy. This helps women feel less isolated and contributes to strengthening group solidarity.

Moreover, because laughter therapy does not require verbal expression of emotions, it offers an important advantage for individuals who are not yet ready to share their traumatic experiences. Emotional release experienced through laughter and bodily relaxation can support women survivors of violence in re-establishing a safe relationship with their own bodies. In this regard, laughter therapy can serve as a preparatory and supportive group intervention that facilitates transition into deeper therapeutic processes.

This potential application highlights that laughter therapy can function not only to reduce symptoms but also as a tool to foster emotional safety, self-compassion, and group connectedness.

The new target groups discussed in this section represent theoretical and practice-oriented suggestions that extend beyond current applications of laughter therapy. These insights do not make direct claims of efficacy; rather, they are based on the alignment between the structural features of the method and the psychosocial needs of the target groups. Therefore, any proposed applications should adhere to ethical principles, be voluntary in nature, and, when necessary, be used alongside other psychosocial interventions.

7. Conclusion and Future Directions: The Role and Long-Term Potential of Laughter Therapy in Psychosocial Support

The theoretical framework, literature findings, and qualitative feedback from the laughter therapy intervention conducted with earthquake-affected mothers under the TÜBİTAK 1001 project demonstrate that laughter therapy is both an effective and feasible intervention in the field of psychosocial support. With its holistic structure that integrates bodily and emotional processes, laughter therapy can be considered a method that facilitates access to positive emotions and aims to reduce stress and anxiety levels.

Following destructive and traumatic disaster experiences such as earthquakes, the psychological burden on individuals often leads to decreased hope, trust, social connectedness, and well-being. In such contexts, psychosocial support programs need to incorporate not only problem-focused strategies but also approaches that are empowering and hope-inducing. Laughter therapy emerges

as an approach that addresses this need. Laughter allows individuals to safely generate positive emotional experiences within their own bodies, supporting the revival of hope even in the shadow of traumatic experiences.

The laughter therapy intervention with earthquake-affected mothers showed that participants experienced both emotional relief and increases in social connectedness and hope. Qualitative feedback indicated that laughter therapy provided mothers with "time for themselves," helped them express their emotions more freely, and demonstrated that "laughing is possible" even after traumatic experiences. These findings suggest that laughter therapy can serve as a complementary and empowering intervention in post-disaster psychosocial support programs.

Added Value of Laughter Therapy: According to the findings presented in this section, laughter therapy provides significant added value in several key areas:

- Accessibility and Sustainability: Laughter therapy is a low-cost, widely applicable method that does not require additional equipment. This feature is particularly important in community settings with limited resources and in post-disaster contexts.
- Voluntariness and Participant Acceptance: Implementation experiences indicate that participants perceive laughter therapy as a non-threatening, relaxing, and enjoyable experience. This enhances the method's potential for broader dissemination.
- Group Dynamics and Social Support: The group-based nature of laughter therapy allows individuals to connect with others who have similar experiences, strengthening their perception of social support. In the case of earthquake-affected mothers, this manifested as a reduction in feelings of loneliness and an increased sense of belonging.
- Impact on Hope and Resilience: Qualitative feedback suggests that laughter therapy helps participants revive their sense of hope. This indicates that the method not only provides short-term relief but also supports long-term psychological resilience.

Positioning as an Effective Complementary Intervention in Practice Settings: Laughter therapy can be considered a complementary intervention that can be integrated into existing psychosocial support programs. In this context, laughter therapy may help individuals rebuild a sense of emotional safety before transitioning to trauma-focused interventions. Additionally, as part of psychosocial support programs, it can aim to strengthen social connections and enhance access to positive emotions. Within this framework, laughter therapy can be applied with various target groups in both clinical and non-clinical settings. It's simple and structured design allows for easy adaptation across different

institutions, including hospitals, educational settings, community centers, and post-disaster support facilities.

Future Directions and Research Recommendations: The findings of this study highlight the need for more systematic investigations into the effects and feasibility of laughter therapy. Future research should include more comprehensive study designs to evaluate the efficacy of laughter therapy and test its applicability across different populations. Additionally, in the context of post-disaster psychosocial support, the impact of laughter therapy on individuals' levels of hope and perception of social support warrants more detailed examination. Such studies could provide clearer insights into how laughter therapy contributes to recovery processes following traumatic experiences.

In conclusion, laughter therapy can be considered a low-cost, safe, feasible psychosocial intervention that supports social connectedness through group dynamics. The application conducted with earthquake-affected mothers demonstrates that the method represents a unique approach suitable for inclusion in post-disaster psychosocial support programs. Consequently, laughter therapy can be regarded as a tool that promotes recovery and helps restore a sense of hope at both individual and community levels.

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Chapter 6

Wittgenstein on Language, Rule-Following and the Critique of Metaphysics

Güven ÖZDOYRAN[1]

INTRODUCTION

This chapter aims to explain why Wittgenstein considers philosophy to be a key to the correct use of language. This claim constitutes the main concern of the present study. Accordingly, the fundamental concepts to be examined include language, meaning, language-games, application, rule-following, and grammar.

In later Wittgenstein, philosophy is not conceived as a doctrine but as an activity that clarifies the incorrect applications of language and the misunderstandings that arise from them. In this sense, philosophy is an investigation that stands in contrast to metaphysics. Metaphysics, in this framework, is regarded as operating outside ordinary language. As is known, in later Wittgenstein, the meaning of a word or a proposition depends upon how it is used in language. The correct employment of rules is necessary for the proper application of language; otherwise, the words involved in a language-game become senseless.

The concept of rule-following in Philosophical Investigations can be related to Wittgenstein's critique of philosophy. For instance, when the question "What is the essence of existence?" is posed, the problem is already present at the outset. The concept is treated as if it possesses an essence in itself, and an attempt is made to explain it independently of its application in language. According to Wittgenstein, such an attempt amounts to stepping outside language. Philosophy must therefore demonstrate that there is no essential distinction between ordinary language and philosophical language. Philosophical problems arise from the assumption that these two forms of language are fundamentally different.

Wittgenstein's understanding of meaning and language is essential for comprehending his critique of philosophy and metaphysics. It can be argued that understanding how Wittgenstein criticizes traditional philosophy in Philosophical Investigations provides the key to understanding his philosophy of language. In this respect, the concept of rule-following, which constitutes the foundation of

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Wittgenstein's philosophy of language, simultaneously forms the basis of his critique of traditional philosophy.

For this purpose, the study proceeds in two stages. First, the fundamental components of Wittgenstein's philosophy of language, such as meaning, application, rule-following, language-games, and family resemblances, are examined. Second, it is also explained why metaphysical propositions are considered meaningless and why they stand outside the domains of meaning and application. Furthermore, it is shown why Wittgenstein understands philosophy as an activity that illuminates these misunderstandings.

MEANING AS USE AND RULE-FOLLOWING

In later Wittgenstein, the meaning of a word is its application in language. He rejects the view presented in the *Tractatus Logico-Philosophicus*. In that earlier view, the meaning of a word was understood as the object it signifies. Meaning is not to be investigated in terms of a correspondence between word and object, but rather "in terms of its application within language". As Wittgenstein expresses: "Meaning can be defined thus: the meaning of a word is its use in the language" (Wittgenstein, 1968: 43).

If the meaning of a word were identical with its object, some words that do not have any object, such as "Socrates" or "Pegasus", would be senseless. However, this is not the case. To understand a word is to grasp how it is used within language. In this way, a sentence functions as an instrument, and the central issue becomes how this instrument is used (Soykan, 1995: 43-62). Therefore, a word cannot possess meaning independently of its application. In this respect, it must be noticed that Wittgenstein rejects essentialism.

As language is a public phenomenon, the meaning of a word must depend upon criteria that occur in public practice. Wittgenstein refers to these as rule-following criteria. However, following a rule is not a matter of thought but a process grounded in action. In this sense, it can be said that rule-following is not an individual or internal activity, but a practice that is embedded in a shared context. If following a rule were only a matter of thought, there would be no distinction between correct and incorrect application. However, such a distinction is only possible within a public framework in which rules are recognized and applied. Therefore, the meaning of a rule cannot be determined by a private interpretation, but must depend on its use within a community. In this way, rule-following shows that language is not a private system, but a social practice that is grounded in common forms of life.

"And hence also 'obeying a rule' is a practice. And to *think* one is obeying a rule is not to obey a rule. Hence it is not possible to obey a rule 'privately': otherwise thinking one was obeying a rule would be the same as obeying it' (Wittgenstein, 1968:202).

The source of language is, therefore, nothing other than social practice. Moreover, to understand a language is to be able to use it. What determines the correct use of a word in language is communal agreement (Malcolm, 1988: 65-78). Accordingly, meaning and application emerge within a social form of life. As Wittgenstein states, "to imagine a language means to imagine a form of life." The practice of a language constitutes part of a form of life.

According to Wittgenstein, a form of life provides the conditions under which language acquires meaning. In this respect, a form of life depends upon agreement, and an agent who does not know the rules governing such agreement cannot participate in the practice (Baker & Hacker, 1986: 232-239). This also demonstrates why a word cannot have a single fixed meaning in language, since language is the result of multiple agreements and applications. Meaning cannot be abstracted from social life, nor can it be determined by reference to an object. For Wittgenstein, language is not a fixed structure, and it does not possess an underlying essence.

"This finds expression in questions as to the *essence* of language, of propositions, of thought.-For if we too in these investigation are tying to understand the essence of language- its function, its structure, -yet *this* is not what those questions have in view. For they see in the essence, not something that already lies open to view and that becomes surveyable by a rearrangement, but something that lies *beneath* the surface. (Wittgenstein, 1968: 92).

Any attempt to address these issues, however, is bound to fail, since it is impossible to provide an answer that would be acceptable for all possible cases of linguistic experience. Instead, attention must be directed toward language and language-games. According to Wittgenstein, to use a word, that is, to know what it means, takes place within language-games. As he states, "I shall also call the whole, consisting of language and the actions into which it is woven, the 'language-game' (Wittgenstein, 1968: 7).

Language is acquired through active participation in language-games. Language-games within a given linguistic context articulate the form of life to which participants belong. In this sense, a language-game is not merely a linguistic structure but "a mode of practice embedded in a form of life". For instance, the interaction between a teacher and a pupil may be understood as a language-game that constitutes a form of life in which the pupil acquires the practical competence required to build a wall.

A language-game consists of linguistic expressions together with the actions that accompany them. If such actions do not accompany these expressions, it cannot be regarded as a language-game. However, it is not possible to provide a definitive description of language-games, since they constitute the foundation of language, and such a foundation cannot be fully articulated in Wittgenstein's view.

Nevertheless, this does not imply that language is simply the totality of language-games. In later Wittgenstein, language is not conceived as a mathematical totality, as it had been in the *Tractatus*. Rather, there is no single characteristic shared by all language-games, instead, they are connected through various forms of resemblance. One part of a language-game may resemble another, without there being a universal element shared by all.

FAMILY RESEMBLANCE AND THE REJECTION OF ESSENCE

"-Instead of producing something common to all that we call language, I am saying that these phenomena have no one thing in common which makes us use the same word for all,- but that they are *related* to one another in many different ways. And it is because of this relationship, or these relationships, that we call them all "language". (Wittgenstein, 1968: 65)

This remark emphasizes that the unity of language cannot be grounded in a shared essence, but rather in a network of overlapping similarities. In this sense, the use of a single term does not presuppose the existence of a common property, but reflects a series of interconnected relations. In this sense, it can also be said that the attempt to find a common essence for all uses of language leads to misunderstanding. When language is approached with the expectation that there must be a single defining feature, its actual diversity is overlooked. However, according to Wittgenstein, language operates through a variety of uses that are connected not by identity but by resemblance. Therefore, instead of searching for an underlying essence, it is necessary to observe how language is used in different contexts. In this way, the focus shifts from abstract definitions to the practical functioning of language within different language-games. Wittgenstein further develops this point by directing attention away from abstract generalization toward the examination of actual linguistic practices:

"Don't say: "There *must* be something common, or they would not be called games-but *look and see* whether there is anything common to all.-For if you look at them you will not see something that is common to *all*, but similarities, relationships, and a whole series of them at that. To repeat: don't think, but look." (Wittgenstein, 1968: 66)

It thus becomes clearer how a structure can be identified as a language. Contrary to the view presented in the *Tractatus Logico-Philosophicus*, where language is conceived as a totality of propositions corresponding to the totality of facts in the world, "the world is the totality of facts, not of things." (Wittgenstein, 2011: 1.1), language cannot be established as a totality in Wittgenstein's later philosophy. Rather, it functions as a framework that enables the interconnection of different language-games. Language, suggested in *Investigations*, is not an ideal language, but ordinary language. Moreover, not logic bur grammar determines the structure of that language. "*Essence* is expressed by grammar (Wittgenstein, 1968: 371)". According to that, we can say that framework is established by grammar, in which rules occur. Grammar is one of the basic concepts in later Wittgenstein. In Investigation, the harmony between reality and language is deconstructed and this kind of harmony is admitted as metaphysics. Furthermore, grammar is independent of any kind of reality. There is a relation between the view of independence of language and the view of autonomy of grammar. If language has a metaphysical foundation, grammar could not be autonomous (Malcolm, 1988: 120–132). In this sense, we can only say for grammar that it shows us the way of using a language. That is, to follow a rule is dictated us by means of language. "Grammar tells what kind of object anything is (Theology as grammar)" (Wittgenstein, 1968: 373). Since, to see an object is related with language and we find that relation in grammar. However, we cannot understand what he means by saying 'theology as grammar', but it can be said that this expression may be interpreted as a kind of hermeneutic.

According to Wittgenstein, grammar constitutes the only legitimate criterion for eliminating misunderstandings in philosophy. Philosophical confusion does not arise from a lack of empirical knowledge, but from a misapprehension of the rules governing the use of language. In this sense, philosophical problems are not problems of fact but problems of expression, rooted in the misuse or displacement of words across different contexts. The task of philosophy is therefore not to construct theories, but to clarify how language functions by examining its grammatical structure. Such clarification requires close examination of the practical use of words, as well as to the analogies that generate confusion by transferring expressions from one linguistic context to another. Wittgenstein formulates this methodological approach as follows:

"Our investigation is therefore a grammatical one. Such an investigation sheds light on our problem by clearing misunderstandings away. Misunderstandings concerning the use of words, caused, among other things, by certain analogies between the forms of expression in different regions of language. –Some of them

can be removed by substituting one form of expression for another; this may be called an 'analysis' of our form of expression, for the process is sometimes like one of taking a thing apart." (Wittgenstein, 1968: 90)

Such substitution is made possible by ordinary language. This point is crucial for understanding Wittgenstein's critique of metaphysics. It may be assumed that an action is incorrect within a particular game, just as a word may be used incorrectly within a given language-game. In such cases, the same action may be appropriate in another game, and the same word may be correctly employed within a different language-game. Accordingly, to describe the use of a word is to articulate the grammatical rule governing that use. In this sense, Wittgenstein's proposal is that misunderstandings can be avoided only through a grammatical analysis of expressions within ordinary language.

This emphasis on ordinary language reveals that philosophical problems do not arise from the absence of meaning, but from the displacement of meaning across different contexts of use. When expressions are detached from the language-games in which they have a determinate function, they appear to generate abstract or metaphysical questions. However, such questions lose their force once the expressions involved are returned to their proper grammatical context. Thus, philosophical clarification consists not in providing answers to these questions, but in dissolving them by exhibiting the rules that govern the meaningful use of language.

Wittgenstein thus rejects the distinction between philosophical and ordinary uses of language. Moreover, according to him, correct usage is to be found in ordinary language. For example, when an essence is attributed to "being," its meaning is abstracted from its application in practice. Yet a word cannot possess any sense independently of its use in language, since once one moves beyond the limits of ordinary language, there is no rule to follow. In this respect, such indeterminate or unstable meanings can only be avoided through grammatical clarification. According to Wittgenstein, philosophy should not be conceived as a doctrine, but rather as an activity that clarifies misunderstandings of concepts. However, he does not provide a systematic definition of philosophy in *Philosophical Investigations*. Instead, he introduces a suggestive analogy in order to illuminate its character. "The philosopher's treatment of a question is like the treatment of an illness." (Wittgenstein, 1968: 255)

This analogy suggests that philosophical inquiry does not begin from a position of clarity, but rather from a condition of conceptual disturbance. To engage in philosophy, in this sense, is to confront a form of intellectual unease or disorder at the outset. Accordingly, philosophical thinking is not directed toward the construction of systematic knowledge, but toward the diagnosis and

resolution of the confusions that give rise to philosophical problems. From this perspective, difficulties are not external to the philosophical process but inherent within it, and the task of philosophy consists in revealing and resolving these disturbances through clarification.

"The results of philosophy are the uncovering of one or another piece of plain nonsense and of bumps that the understanding has got by running its head up against the limits of language. These bumps make us see the value of the discovery." (Wittgenstein, 1968: 119)

Wittgenstein identifies a one-sided diet as the source of philosophical illness, noting that "one nourishes one's thinking with only one kind of example" (Wittgenstein, 1968: 593). Such a mode of thinking results in a deprivation of understanding, as it limits the range of perspectives through which concepts can be grasped. According to Wittgenstein, the resolution of a philosophical problem is possible only by determining how the question itself should be properly posed so that it becomes answerable. In this sense, the possibility of a solution depends upon the correct arrangement of concepts. If concepts can be brought back within the domain of ordinary language, it becomes possible to understand how they ought to be used in accordance with established rules. Otherwise, concepts are treated as if they possess meanings distinct from their ordinary use, and thought is thereby led beyond the limits of language. In this respect, philosophy does not determine the application of language, but rather clarifies it. "Philosophy may in no way interfere with the actual use of language; it can in the and only describe it. For it cannot give any foundation either. It leaves everything as it is." (Wittgenstein, 1968: 124)

THE CRITIQUE OF METAPHYSICS

As can be seen, philosophy does not have priority in Wittgenstein; rather, what has priority is the philosophical problem itself. In this sense, metaphysics may be understood as an attempt to go beyond the limits of language. However, Metaphysics cannot disrupt the proper use of language, since it does not alter it. Therefore, it can be argued that philosophy, in the context of metaphysics, does not actually do anything, but only appears to do so. For this reason, the fundamental error of metaphysics is to assume the existence of something that does not, in fact, exist.

In this context, it can also be said that philosophical problems arise not because language is insufficient, but because it is misunderstood. When language is taken beyond its ordinary use, it creates the illusion that there are deeper or hidden meanings to be discovered. However, according to Wittgenstein, such meanings do not exist independently of their use. For this

reason, the task of philosophy is not to search for new meanings, but to clarify how existing meanings function within language. In this way, philosophical investigation shows that many problems are not real problems, but the result of confusion in the use of language.

"A philosophical problem has the form: 'I don't know my way about'" (Wittgenstein, 1968: 123). This statement indicates that what appears as a philosophical problem does not arise from a genuine metaphysical difficulty, but from a lack of clarity in orientation within language. In this sense, there is no metaphysical problem at its foundation. Rather, the task of philosophy is to show the absence of such a problem by clarifying the conditions under which confusion arises. Accordingly, philosophical investigation does not aim to solve a problem in the traditional sense, but to demonstrate that what is taken to be a problem is in fact the result of misunderstanding. It means that there is no metaphysical problem in foundation and the duty of philosophy is to show absence of problem.

"It is not our aim to refine or complete the system of rules for the use of our words in unheard-of ways. For the clarity that we are aiming at is indeed *complete* clarity. But this simply means that the philosophical problems should *completely* disappear." (Wittgenstein, 1968: 133)

This expression can be considered a clear example for understanding Wittgenstein's attitude toward metaphysics. According to Wittgenstein, a philosophical problem is not established in the correct way, and to attempt to give an answer to such a question is already to accept the question as if it were properly constructed. If a situation can be stated in a simple way, there is no need for complex forms of expression.

In this sense, philosophical confusion arises when language is unnecessarily complicated or removed from its ordinary use. When expressions are made more complex than required, they create the impression that there is a deeper problem to be solved. However, according to Wittgenstein, this impression is misleading. The problem does not lie in reality itself, but in the way language is used. Therefore, instead of producing more complex explanations, philosophy must aim to simplify expressions and to show that what appears as a problem disappears once language is used in its proper context. In this sense, according to Wittgenstein, philosophy must not be confused with metaphysics. Philosophical investigation is a conceptual investigation, and the results of such investigation must show the correct use of concepts. However, the foundation of metaphysics lies in confusing the investigation of concepts with the investigation of things. Metaphysics treats concepts as if they possess an essence, and in doing so, it moves beyond the limits of ordinary language.

For example, when the concept of "*Good*" is taken as if it has an immanent meaning, the discussion shifts from the field of concepts to the field of facts. This constitutes the fundamental mistake of metaphysics and traditional philosophy, since there is no object corresponding to "*Good*" that can be signified, and its meaning cannot be abstracted from ordinary life (Carruthers, 1984: 171–175). Consequently, philosophy must not situate itself within the field of facts when its proper domain is the field of concepts. Otherwise, the distinction between metaphysics and philosophy becomes unclear.

According to Wittgenstein, because philosophers tend to comprehend language from a distorted perspective, metaphysics is seen as the main subject-matter of philosophy. What is the aim of philosophy must be encouraging to leave such wrong views. Wittgenstein describes such perspectives in the following way;

"The ideal, as we think of it, is unshakable. You can never get outside it, you must always turn back. There is no outside; outside you cannot breathe. –Where does this idea come from? It is like a pair of glasses on our nose through which we see whatever we look at. It never occurs to us take them of." (Wittgenstein, 1968: 103)

However, it must be noted that Wittgenstein does not suggest replacing these glasses with better ones. Rather, he suggests that they must be left behind altogether. In this sense, the problem is much deeper than it initially appears. For this reason, instead of attempting to resolve these problems within the same framework, it becomes necessary to transform our way of seeing the world.

In this context, it can be said that philosophical confusion is not simply the result of incorrect thinking, but of a fixed perspective that determines how language is understood. When this perspective is taken for granted, it becomes difficult to recognize its limits. However, according to Wittgenstein, clarity can only be achieved by stepping outside this fixed way of seeing and by reconsidering how language actually functions. Therefore, the task of philosophy is not to improve the existing framework, but to question it and to show that many of the problems arise from the perspective itself rather than from reality.

On the other hand, Wittgenstein does not attempt to replace the traditional method with his own view. His enterprise must rather be understood as an attempt to persuade us that there is no need for any kind of "glasses" in order to see. In this sense, philosophy should not be understood as a doctrine that has fixed limits. Moreover, the essential discovery lies in the capacity that enables us to leave philosophy when it is no longer needed.

In this context, it can be said that philosophical thinking often becomes trapped within a certain picture that shapes how language and reality are understood. When this picture is taken as given, it limits the possibility of seeing things differently. However, according to Wittgenstein, the task of philosophy is not to construct a new picture, but to show that the existing one is not necessary. In this way, philosophy opens the possibility of moving beyond the constraints imposed by such pictures.

Furthermore, Wittgenstein's approach suggests that philosophical problems persist only as long as we remain within the same framework of thinking. Once this framework is questioned, the apparent necessity of these problems disappears. Therefore, philosophy does not aim to establish a new system, but to create a condition in which thinking is no longer bound by rigid structures. In this sense, philosophical clarity is achieved not by adding new explanations, but by recognizing the limits of the existing ones.

Therefore, it can be said that for Wittgenstein philosophy is not a doctrine from which unchangeable systems can be deduced. Rather, it is an activity whose main purpose is to show the correct use of language and to eliminate misunderstandings. As has been mentioned, the fundamental problem of philosophy arises from the failure to recognize the distinction between the field of facts and the field of concepts. Therefore, the primary task of philosophers is to resolve this confusion.

In this sense, philosophical inquiry does not aim to produce new knowledge about reality, but to clarify how concepts are used within language. When this distinction is not properly recognized, concepts are treated as if they refer to independent objects, and this leads to metaphysical confusion. However, once the use of language is examined carefully, it becomes clear that many philosophical problems are not genuine problems, but the result of misunderstanding. For this reason, the role of philosophy is not to construct theories, but to clarify the conditions under which meaningful discourse is possible. Although metaphysics is senseless, nevertheless, it could have a possibility in *Tractatus*.

"In PI, however, all of this has gone: there now seems no respect in which metaphysics is held to possible at all. All that remains to the philosophers is to attempt to gain a clear view of the workings of his language." (Carruthers,1984: 473)

The impossibility of metaphysics is based on the fact that it stands outside language. A metaphysical approach uses concepts in a way that is not appropriate to grammar. Although there is no immanent meaning of any word independent

of its application within a language-game, metaphysics attempts to attribute an essence to words, as if they possessed a meaning in themselves.

However, existence can only be expressed by means of language, and language is not a transparent instrument. For this reason, while metaphysics could still be considered as an activity in the *Tractatus*, it becomes impossible in the *Philosophical Investigations*.

CONCLUSION

In conclusion, according to Wittgenstein, philosophy's primary aim is "to clarify the use of language" and to eliminate misunderstandings. The fundamental problem of philosophy arises from the failure to recognize the distinction between the field of facts and the field of concepts.

Metaphysics, in this framework, is revealed as an attempt to go beyond the limits of language. Its propositions are not false but meaningless, because they lack a role within language-games.

Furthermore, Wittgenstein's later philosophy emphasizes that philosophical clarity is achieved not by constructing theories but by examining how language is used in practice. Philosophy does not provide new knowledge but restores clarity by dissolving confusion.

In this sense, the significance of Wittgenstein's approach lies in its transformation of philosophical inquiry. Philosophy becomes a method of clarification rather than a system of explanation. By returning language to its ordinary use, it reveals that many traditional philosophical problems are not genuine problems at all.

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Chapter 7

Neurocognitive Foundations of Political Decision-Making in Algorithmic Environments: Implications for Digital Behavior

Fatih YAMAN[1]

Introduction

Political decision-making has long been examined through models that emphasize rational evaluation, preference formation, and information processing. However, increasingly more research indicates that such explanations remain incomplete without taking into consideration the underlying cognitive and biological processes that influence the way people perceive and react to political information. In contemporary information environments, individuals are not only exposed to vast amounts of content but encounter it in forms that are structured, filtered, and prioritized in specific ways. These conditions raise a central problem: political judgment cannot be understood solely as an internal cognitive process but must be examined in relation to the environments within which information is encountered and evaluated.

Existing studies in political psychology and neuroscience have provided valuable insights into this question. These studies have demonstrated that political cognition is a function of interplay between affective reactions, identity-driven motivations, and cognitive limitations (Kunda, 1990; Marcus et al., 2000; Taber & Lodge, 2006). Research on motivated reasoning, affective intelligence, and dual-process theories has also revealed that humans engage in both intuitive and deliberate cognitive processing when making political decisions. In this context, humans tend to prioritize consistency with existing opinions over accuracy (Kahneman, 2003; Lodge & Taber, 2013). Moreover, studies in political neuroscience have linked this cognitive processing to neural structures associated with valuation, emotion regulation, and social identity. These studies have also demonstrated that political behaviors are rooted in various neuro-cognitive structures rather than deliberate cognitive processing (Amodio et al., 2007; Moore et al., 2021; Van Bavel & Pereira, 2018). More recent studies have extended this information to online environments. These studies have demonstrated that algorithmically designed online environments

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can shape information access and exposure, especially emotionally engaging information and identity-driven interpretations (Bakshy et al., 2015; Pennycook & Rand, 2021; Vosoughi et al., 2018).

Nevertheless, this relationship between neurocognitive processes and digitally structured information environments remains only partially explored. Much of the literature has focused either on the internal mechanisms of political cognition or on the external dynamics of digital media. This dichotomy between internal and external aspects of politics and media creates problems for understanding how cognitive propensities are elicited, strengthened, and/or changed under conditions of algorithmic curation. This is important not only for theory-building purposes but also for understanding phenomena such as polarization, misinformation persistence, and selective exposure. These phenomena cannot be explained at either the individual or the environmental level.

Building on this perspective, the present study argues that political decision-making in digital contexts emerges from the interaction between neurocognitive processes and algorithmically structured information environments. The thesis advanced is that attention, emotion, identity, and evaluation are differently engaged when individuals are exposed to information environments engineered by algorithms, with significant implications for digital political behavior.

First, the study describes the emergence of political neuroscience as a discipline. It emphasizes its interdisciplinary approach and situates political behavior within a neurocognitive framework. Second, it explains major mechanisms of political decision-making -such as emotion, valuation, and identity- as they relate to judgment. The study then presents common research methodologies and discusses their conceptual and empirical limits. Next, it examines how identity, emotion, and information processing interact, considering their possible relationships. Finally, it discusses how algorithmic environments can shape information and cognitive tendencies in political contexts.

1. The Emergence of Political Neuroscience

Political neuroscience, also called political neuropolitics, has emerged from an interdisciplinary approach. It combines political science, psychology, and cognitive neuroscience to examine political behavior at multiple levels (Haas, 2016; Jost et al., 2014). This relatively new field responds to the limits of conventional political behavior theories. Standard theories prioritize institutional, socioeconomic, or socialization factors and often neglect biological and cognitive elements at the individual level (Fowler & Schreiber, 2008). Traditionally, political decision-making is seen as a rational process at the aggregate level. In contrast, political neuroscience highlights the underlying physiological and cognitive mechanisms

behind individual information processing (Haas, 2016). Thus, political behavior emerges not only from rational thinking but also from socially embedded cognition grounded in the brain's mechanisms for handling group dynamics and coalition formation (Schreiber, 2017).

Much of this research focuses on the intersection of political attitudes or ideology and neurocognitive function. One area of interest is motivated social cognition (Haas, 2016; Jost et al., 2014). Neuroimaging studies have identified neural networks tied to ideological differences. For instance, there is a link between political liberalism and increased anterior cingulate cortex activity during cognitive conflict (Amodio et al., 2007).

Recent research has, however, focused more on the role of political identity and partisanship in information processing. Under this framework, it is seen that political cognition is influenced by preferences, but it is also influenced by identity-related motivations, where neural systems that are used for valuation, such as the ventromedial prefrontal cortex, encode information in a manner that is consistent with feelings of belonging and status concerns (Van Bavel & Pereira, 2018). This is why people may be more accepting or rejecting of information depending on how well it fits with their political identities. These same effects are observed in research on misinformation, where information that is incongruent with one's own beliefs is evaluated more carefully, whereas information that is more congruent is accepted with less evaluation (Moore et al., 2021). However, with advancements in computational techniques, such as machine learning and neuroforecasting, a wider scope for research has been opened, where it is possible to predict political attitudes and behavior on the basis of neural data (Schreiber, 2017).

Despite these developments, political neuroscience is still limited by several methodological and theoretical challenges. The first challenge is perhaps the interpretation of data from neuroimaging methods, which do not measure neural activity per se but through indirect methods such as measuring blood oxygenation. There is thus a disconnect between observed neural activity and cognitive processes (Farah, 2014). There is an overinterpretation concern, especially when specific brain regions are quickly associated with complex psychological processes. Second, there is an issue regarding causality. In particular, it is not clear whether observed neural differences precede political attitudes or develop as a result of extensive engagement with specific social and informational environments (Haas, 2016). Contrary to the biological account, recent research suggests an interplay between neural predispositions and contextual influences in shaping political cognition over time (Jost et al., 2014; Schreiber, 2017).

2. Neurocognitive Mechanisms of Political Decision-Making

Political orientation is commonly associated with relatively stable neurocognitive profiles; in this context, research has found that liberalism is associated with greater conflict-related activity in the anterior cingulate cortex (ACC), which is responsible for processing information complexity and novelty (Amodio et al., 2007). These findings show that political beliefs are not exclusively a product of social context but are also related to broader mechanisms of cognitive control and self-regulation (Van Bavel & Pereira, 2018). However, political decision-making is not a direct product of these traits; rather, it results from their interaction with contextual cues and social factors.

This is particularly evident in the process of motivated reasoning. When people are exposed to information inconsistent with their preferred political actors, they engage in implicit emotion regulation to maintain belief consistency with their identity (Westen et al., 2006). Neuroimaging shows that in these moments, decision-making engages more brain regions involved in valuation and emotion -such as the ventromedial prefrontal cortex and anterior cingulate cortex- than those involved in analytical reasoning (Kaplan et al., 2016). The brain seems wired to favor information that limits emotional discomfort. Intrinsic brain systems help maintain self-relevant beliefs.

Identity-based motivations further refine the process of political information evaluation by assigning subjective value to contending claims. Neural structures involved in the process of valuation, such as the orbitofrontal cortex, are involved in the process of weighing identity-based goals, such as belonging and status, with accuracy (Van Bavel & Pereira, 2018). This often leads to in-group bias, in which information more in line with the political group to which a person identifies is more favorable (Van Bavel et al., 2008). However, rapid evaluation of information through interactions among structures such as the amygdala and striatum is also involved in generating affective signals (Phelps et al., 2014). This indicates that the process of political information evaluation is often intuitive, occurring prior to more rational evaluations (Bechara et al., 1997; Kahneman, 2003).

The processing of political information is also influenced by the relationship between credibility and prior beliefs. It has been noted that people do not respond equally to political information. Rather, neural responses differ depending on whether information is credible and consistent with existing attitudes (Moore et al., 2021). For example, neural responses can occur when people encounter opposing political figures. This is because cognitive control networks are associated with the control of negative emotions (Kaplan et al., 2007). In polarized environments, this relationship is more pronounced. In such environments, neural sensitivity increases when processing information inconsistent with existing beliefs, especially when it

comes from untrusted sources (Moore et al., 2021). This demonstrates that the amygdala is not limited to responding to threat; it also responds to the motivational aspects of social information (LeDoux, 2000).

However, such knowledge should be taken into account with caution. One issue in the field of political neuroscience is the potential for overinterpretation of brain activation patterns, especially in reverse inference, where the activation of a particular brain region is taken as evidence of a specific psychological state (Poldrack, 2018). Furthermore, some brain areas often mentioned in discussions of the neural substrates of political reasoning are involved in various cognitive and emotional processes. Besides that, the complexity of neuroimaging techniques is related to other problems, such as statistical inference and misleading representations of results (Farah, 2014). It is important to note that neural evidence is part of a general explanation.

3. Measuring the Political Brain: Methods and Limits

The emergence of political neuroscience is an attempt to study political behavior by integrating biological and cognitive factors and considering evidence from multiple levels of analysis (Cacioppo et al., 2000). In studying how information-processing differences influence political attitudes and behavior, various measurement methods have been used. The most prominent include functional magnetic resonance imaging (fMRI), electroencephalography (EEG), and psychophysiology (Haas, 2016). Of these, fMRI has become one of the dominant tools in studying political neuroscience. The reason for its popularity is its ability to measure brain activity without invasive methods, especially in tasks such as assessing political figures and responding to political information (Huettel et al., 2014; Logothetis, 2008). The procedure is based on the principle of measuring changes in blood oxygen levels, which are an indicator of brain activity (Huettel et al., 2014). Though fMRI provides good spatial resolution, EEG is better at measuring temporal dynamics. EEG can record changes in brain activity with greater accuracy, especially in response to political stimuli (Haas, 2016). The reaction occurs so quickly that it cannot be measured with fMRI. These procedures can be further supplemented by skin conductance and pupillary responses, which measure physiological arousal (Cacioppo et al., 2000).

However, the scope of interpretation of the results obtained through these methods is also constrained in significant ways. One major limitation is the indirect nature of the data obtained through neuroimaging methods. These methods measure proxy rather than directly observed brain activity and may be affected by a number of physiological factors unrelated to the cognitive process being studied (Huettel et al., 2014; Logothetis, 2008). Moreover, neuroimaging methods are more

observational than manipulative. This means that the observed relationships between brain areas and functions are only correlational, not causal (Haas, 2016). While it may be possible to observe the activity of a region, such as the amygdala, during a political task, this does not imply that the region is causally involved in the task or that unobserved factors may not be influencing the process (Poldrack, 2018). In general, the effort to map complex constructs such as ideology or partisanship onto distinct brain structures may be overly simplistic and fail to capture the distributed, interacting systems underlying these processes (Cacioppo et al., 2000; Huettel et al., 2014).

This is particularly evident in the issue of reverse inference, in which researchers infer the mental state of the person being studied from the brain's activation patterns (Poldrack, 2006). This is particularly misleading, since many brain areas are involved in a range of cognitive and emotional processes. For instance, the anterior cingulate cortex has been associated with various functions such as attention, error detection, and emotion processing, and it is not possible to pinpoint the activation of this region of the brain with a single mental process (Poldrack, 2018). Issues such as neurorealism and neuroessentialism have also been raised in relation to fMRI studies. This is the tendency for brain images to be considered more reliable than other forms of evidence in studies, despite the fact that they can be interpreted in many ways (Racine et al., 2005). In fMRI studies, statistical problems such as the multiple comparisons problem have been cited as a challenge in the field. This is particularly relevant to the increased risk of false positives in analyzing the large number of voxels in fMRI studies (Huettel et al., 2014). This has been particularly evident in the well-known "dead salmon" study, in which inappropriate thresholds were used to analyze brain images. This led to false-positive results in the study (Poldrack, 2018). Another challenge in fMRI studies is the tendency for circular analysis methods to overstate the correlations between brain activity and behavior. This is particularly in cases where the results of the studies are hard to replicate (Vul et al., 2009).

For all of these reasons, neuroscientific research is best understood as one part of a larger framework of explanation, and it is best not used as a definitive explanation of political behavior. For instance, research that demonstrates that people with different political views show different neural activity, even when their outward behavior is similar, supports the notion that different internal pathways may lead to similar political outcomes (Schreiber et al., 2013). However, it is not yet clear whether neural predispositions influence political views or whether being in a particular social and informational environment for a long period shapes brain structure and function (Haas, 2016). Therefore, when viewed in this context, neuroscientific research is helpful in assessing the possibility of certain explanations,

but it is best used in conjunction with behavioral, social, and contextual research to gain a more complete understanding of a given topic (Farah, 2014; Poldrack, 2006).

4. Identity, Emotion, and Information Processing in the Brain

The relationship between political identity, emotional arousal, and cognitive process is a strong filter through which political information is viewed and interpreted. Political information is not viewed by an individual in a neutral sense; rather, they are influenced by their social context, which determines how they see themselves and their fellow members of society. Social identity is automatically and quickly activated; therefore, group membership influences an individual's political judgments (Hornsey, 2008; Reynolds, 2017). In a modern political context, political identity is one of the most salient social identities, influencing not only political attitudes but also shaping perceptions and evaluations of political information (Van Bavel & Pereira, 2018). In this context, political beliefs are not evaluated based on their factual accuracy but also their potential to preserve group belonging and coherence.

Such a claim is further supported by neuroscientific evidence that demonstrates how identity-based biases are encoded in valuation and perception systems in the brain. Even small degrees of intergroup distinction are sufficient to generate differential neural activity, resulting in more detailed and more favorable processing of in-group individuals (Van Bavel et al., 2008). Areas of the brain such as the orbitofrontal cortex and ventromedial prefrontal cortex seem to encode the subjective value of social and political stimuli, effectively weighing identity-based goals against concerns of accuracy (Moore et al., 2021; Van Bavel & Pereira, 2018). Thus, it can be said that political identity is not so much a fixed preference, but more a moving evaluative framework that influences how competing pieces of information are interpreted.

Emotion also has a crucial role in the process by guiding attention and affecting the encoding and retrieval of information. Detection of the motivational value of stimuli involves the amygdala, while the response to politically salient information involves affective systems in a more general manner (LeDoux, 2000; Phelps, 2006). What is also important in the present context is that different emotions may have different cognitive consequences. Anxiety may enhance the processing of external information and increase the willingness to revise one’s own attitude, while anger may have the opposite effect by reinforcing one's own attitude (Druckman & McDermott, 2008). This implies that emotions do not just accompany the making of political judgments but actually guide the processing of information.

The relationship between identity and emotion leads to motivated reasoning. This is where people engage in information processing that is consistent with their

existing attitudes while maintaining a sense of objectivity (Kunda, 1990). This occurs when people exhibit biased information retrieval, biased argument evaluation, and biased acceptance or rejection of information. This does not mean that people stop reasoning. Rather, they engage in motivated reasoning that is directionally influenced by identity. This is why people do not tend to converge in attitudes when given balanced information. In fact, this information leads to polarization, especially among politically engaged citizens who have the cognitive abilities to defend their attitudes (Taber & Lodge, 2006).

Moreover, the source's trustworthiness and credibility will continue to impact the aforementioned processes by shaping the reception of the information. A person will continue to scrutinize information from the out-group relative to the in-group, even when the information is similar (Moore et al., 2021). Moreover, this will continue to affect the perception process, which shapes the reception of visual/text-based information in a politically charged environment (Van Bavel & Pereira, 2018). Hence, misinformation will persist even after corrective information is provided, especially if it is similar to the pre-existing belief. The persistence of misinformation after correction is evident in the continued influence effect, which demonstrates the role of corrected information in the memory process, particularly by disrupting the coherence of pre-existing mental models (Lewandowsky et al., 2012). In some instances, the provision of corrective information can strengthen the original belief because of the familiarity it provides.

These factors are even more evident in a digital context, in which the information exposure structure exacerbates identity and emotion-based processing. For instance, online environments can facilitate the rapid dissemination of information that is emotionally salient, particularly if it is embedded in a message that combines moral language and group-relevant cues (Brady et al., 2017). On the other hand, information diffusion can be fueled by novelty and emotionality; that is, misinformation can diffuse more quickly and extensively than true information (Vosoughi et al., 2018). Although some factors attribute the causes of misinformation diffusion to a lack of analytical engagement, identity and emotion are strong motivators that can influence how information is selected and shared (Pennycook & Rand, 2019; Van Bavel & Pereira, 2018). In this sense, political cognition can be viewed as a socially embedded system that is influenced by information structure, emotion, and identity factors.

5. Algorithmic Environments and the Political Brain

The move from traditional editorial gatekeeping to personalized digital infrastructures has fundamentally altered how individuals receive political information, in favor of individualized algorithmic curation over broad-based

filtering (Bakshy et al., 2015; Lazer et al., 2018). Rather than creating a general informational foundation, these systems increasingly tend to tailor information to users' past preferences, creating what has been termed the "Daily Me" personalized information streams in line with existing beliefs (Sunstein, 2017). In this context, the logic of the attention economy prioritizes engagement over accuracy, systemically favoring information that is emotionally arousing, identity-related, or cognitively salient (Pennycook & Rand, 2021). In this way, it is not just information that is being filtered by digital systems; it is the very conditions under which political judgments are being made.

One of the main ways this occurs is related to the role of novelty in information diffusion. In this regard, existing studies have demonstrated that false information is more likely to diffuse quickly and widely than true information, partly because it is perceived as novel and therefore more deserving of sharing (Vosoughi et al., 2018). This is further exacerbated in the context of emotional responses, where information that elicits high-arousing emotions such as anger, anxiety, and moral outrage is more likely to diffuse across networks than information that does not elicit such emotions (Berger & Milkman, 2012). In politics, this is exacerbated by moral-emotional language, which increases the likelihood of information diffusion within ideological communities (Brady et al., 2017). This indicates that information diffusion in politics is associated with the same emotional and attentional responses previously described.

These factors are also influenced by identity evaluation processes. It is important to note that the "partisan brain" does not receive information in a cognitive way. Rather, neural valuation systems evaluate information based on identity-related goals such as maintaining group membership and consistency (Van Bavel & Pereira, 2018). In this context, when information related to politics is made salient, individuals may prioritize accuracy over identity-consistent interpretations. This leads to motivated reasoning. Neuroimaging studies support this argument that when individuals are exposed to information that is inconsistent with their beliefs regarding politics, neural systems related to increased scrutiny and emotion regulation are active. This is because individuals are motivated to regulate identity threat (Moore et al., 2021). In this context, disagreement is not only cognitive but also emotional and social.

On the other hand, cognitive heuristics such as familiarity and processing fluency also contribute to the persistence of misinformation. In this case, various people have observed that the more they are exposed to certain information, the more they tend to find it true. Despite being aware that such information is false (Pennycook & Rand, 2021). Once misinformation is incorporated into pre-existing cognitive frameworks, it can be hard to remove. This is especially true when no alternative

explanatory framework is offered (Lewandowsky et al., 2012). In such instances, people can either use pre-existing information to make sense of things or defend their pre-existing beliefs when given evidence contrary to them.

The nature of digital networks also helps in enhancing these trends. For instance, digital environments are often characterized by homophily; that is, individuals are more likely to be surrounded by like-minded individuals. In this case, individuals can be polarized in terms of their beliefs (Cinelli et al., 2021). Although individual tastes are critical in defining these trends, these environments can be combined with them to ensure that individuals are surrounded by a homogeneous information environment (Bakshy et al., 2015). In essence, these trends can lead to a situation in which individuals have different perceptions of the public sphere; that is, they can develop different perceptions of reality based on their information environments. In these environments, individuals can choose to ignore facts or interpret facts differently depending on how they relate to perceptions of a group. These trends not only define how individuals interpret political information but can also define their digital political behavior.

These findings suggest that rather than mediating political communication, these environments can interact with neurocognitive processes that define how individuals process information. In this case, these environments can enhance biases by accentuating emotionally salient information closely related to identity and cognitively accessible. Instead of replacing traditional political judgment environments, these environments can be used to amplify and reorganize them. In this case, these environments can be more critical in shaping how individuals engage in politics; that is, they can be more critical in defining how individuals participate in a democracy characterized by cognition, emotion, and identity.

Conclusion

In this study, the decision-making process in politics has been examined using a neurocognitive approach. This approach has centered on how cognitive mechanisms, emotional states, and identity-driven motivations influence how people make sense of information. From this literature, we can clearly see that decision-making in politics is not a product of objective reasoning. Rather, it is a product of interplays between emotional states, evaluative heuristics, and identity-driven motivations. These interplays occur within an integrated system in which attention, memory, and evaluation are constantly influenced by factors that are personally and socially meaningful rather than objectively correct.

Throughout these studies, certain patterns and tendencies can be identified. Emotional salience is key to attention and the prioritization of specific types of information, while identity-based motivations play a role in interpreting and

retaining this information. In these contexts, motivated reasoning is not an exception but rather the norm for political cognition and plays an essential role in ensuring coherence between personal beliefs and identity-based groups. Furthermore, neural structures also support this claim as valuation and identity-based information processing are highly interconnected in the brain, especially when people are confronted with politically relevant or threatening information.

However, these cognitive and affective tendencies are not independent of other factors and influences. Algorithmically organized information environments add a layer of filtering and promotion to the types of information people are exposed to and process. Digital information environments tend to favor information that is novel, attention-grabbing, and identity-congruent and thus aligns well with the underlying tendencies of the political brain. As such, the cognitive and affective tendencies that facilitate effective and efficient decision-making in complex and dynamic environments also contribute to polarization and the persistence of misinformation and selective exposure in digital contexts.

What is revealed through such a perspective is not a deterministic approach to political behavior but rather a relational one. Political judgments and evaluations can be conceived as an interplay between internalized neuro-cognitive processes and externally organized information environments. The interplay between these two aspects is critical within information environments characterized by unevenly distributed informational inputs and strategically organized and algorithmically prioritized information structures.

It is through such a perspective that one can conceive that the process of political decision-making is not merely a function of choosing between options but rather of being in environments in which certain options are more salient or prominent than others. Such a perspective reveals the following: algorithmic systems are not merely channels of communication but rather part of a cognitive landscape within which political decision-making and digital political action occur.

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Chapter 8

Social Media and Learning Behaviors: A Comprehensive Review of Current Evidence

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Social media has become inseparable from contemporary learning environments. Students are not only using platforms such as WhatsApp, YouTube, Instagram, TikTok, Facebook, Telegram, and platform-specific discussion forums for entertainment; they also use them to find explanations, send and share files, ask classmates for help, organize group work, explore their identities, and remain socially connected and visible within their academic communities. The most significant change in literature from 2020-2026 is that researchers now conceptualize social media as a collection of practices that have various educational implications, rather than just one single variable. Across all recent reviews and empirical studies, the consensus is that the educational value of students' use of social media depends upon the purpose of their use, the intensity of their engagement, whether or not their engagement is course-related, and whether they have sufficient self-regulation skills to control their attention to the platform and avoid overload (Masrom et al., 2021; Perez et al., 2023; Mardiana, 2026). The importance of this conditional perspective is reflected in the fact that empirical findings from research findings appear mixed at the surface level but, upon disaggregation of the data, show more similarities between the studies. Most of the research studies that assess academically purposeful uses of social media have found benefits in collaborative work, perceived usefulness of technology, coursework satisfaction, access to academic resources, and in some cases, increased academic performance (Ashraf et al., 2021; Wang et al., 2022; Al-Rahmi et al., 2022). Conversely, research on problematic forms of social media use (e.g., excessive use or emotionally dysregulated use) generally report negative effects; including multitasking costs, technostress, decreased engagement with courses or course material, procrastination of academic assignments, social anxiety, fear of missing out (FOMO), and decreased academic performance (Homaid, 2022; Landa-Blanco et al., 2024; Gong et al., 2025; Duan et al., 2025; Tang et al., 2025). Therefore, an essential question to

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answer is not whether social media influences learning, but how different types of social media affect learning behavior through specific mechanisms.

In recent research, learning behavior can be defined very broadly. This includes observable behaviors such as participation, sharing notes, participating in discussions, seeking information, managing one's time, preparing for classes, and seeking assistance, as well as "internal" dispositions that influence these behaviors including motivation to succeed, self-efficacy, engagement, self-regulation, and persistence. A systematic review of studies conducted on high school students indicated that the use of social media for interaction, communication, sharing content, collaborating, and informal learning demonstrates that the use of social media for learning is both socially and cognitively oriented (Otchie & Pedaste, 2020). Similarly, research in online social networks is beginning to examine knowledge sharing, participation, academic performance, intention to use, and students' behavior as interrelated constructs rather than independent outcomes (Masrom et al., 2021). The reason the same platform produces different outcomes lies in broader contextual factors. For example, a WhatsApp group may function as a highly effective channel for helping learners with clarifications, reminders, and feedback, while on the other hand, the same WhatsApp group can also be a constant source of distraction. TikTok or YouTube feeds can be effective for learners engaging in micro-learning, language exposure or conceptual understanding through the video feed, but continuous entertainment-oriented scrolling on those feeds can result in less time spent on deep studying. In other words, the educational outcome is shaped by the type of platform used but more importantly, by the behavioral context that surrounds the platform including relevance of tasks, timing, instructional framing, social norms and learner choice.

There is a substantial body of evidence from the 2020-2026 period indicating that social media can be an effective way to enhance both learning and communication. The literature indicates that social media reduces the barriers to effective communication and increases the immediacy of peer-to-peer interaction. For example, Ashraf et al. (2021) conducted a study with international medical students studying in China. They found that open learning had a positive relationship with perceived usefulness, perceived ease of use and peer interaction; and that open learning was positively associated with academic performance. This provides evidence that social media not only transmits messages but also contributes to a learning environment of connectedness, support, and rapid exchange of resources. Evidence supporting collaborative learning through mobile social applications is well documented. Wang et al. (2022) found that students' course satisfaction is influenced by mobile social applications' functions

in organizing groups for academic work rather than just socializing. In addition, Liu et al. (2022) found that benefits from collaborative uses of social media, active learning experience, and interaction with other students are strong predictors of social media collaboration, while also positively predicting performance through social media-based collaborative learning and identifying that academic self-efficacy strengthens these relationships. These findings point to social media's strength in education being its ability to facilitate distributed, peer-mediated learning.

Findings from higher education research support these results. Al-Rahmi et al. (2022) found that the quality of education, behavioral intention, and compatibility with technology had a significant impact on student performance and satisfaction with social media-enhanced higher education. Their structural model also showed that the acceptance and use of social media for educational purposes is impacted by technology adoption variables such as perceived benefits, perceived ease of use, and subjective norms, supporting earlier findings that positive outcomes will be experienced when the social media tools employed complement educational activities and when the learners find them helpful, usable, and appropriate for their educational tasks (Al-Rahmi et al., 2022a). Research on the effects of social media use on students' GPAs identifies two key patterns: academically motivated use is positively associated with GPA, whereas non-academically motivated use is associated with poorer academic performance. The Mardiana (2026) study also supports this finding by suggesting that when students used and managed social media purposefully and effectively for academic engagement rather than using social media excessively or distractively is likely to lead to positive academic engagement. Taken together, both studies show that the potential of social media to help students achieve academically is real, but it is contingent on how students use social media (e.g., on-purpose vs. off-purpose) and follow social media use guidelines.

Although the positive effects are conditional, the negative effects are likewise context-dependent and remain robust. A recurring and well-established finding in recent literature is the role of distraction. Cao & Tian's (2022) study of university students in the UAE found that social media use adversely affected academic performance indirectly through collaborative learning, student-instructor interaction, and academic distraction, showing that the same digital ecosystem can be simultaneously both beneficial and detrimental to learning. The takeaway is not that social media is necessarily bad, but that its always-on architecture disrupts sustained attention when academic and non-academic use is interspersed. The multitasking literature shows a similar pattern. Chowdhury & Begum's (2025) study of Bangladeshi university students explored the academic

consequences of social media use and multitasking and found that some specific social media behaviors had differential associations with academic outcomes, pushing back against simple gloom and doom assumptions while still urging attention to specific multitasking patterns and platform behaviors. Their contributions are particularly welcome because they extend this argument by emphasizing that the effects depend on specific conditions.

Other studies give a clearer signal of harm. Homaid (2022), assuming a stressor-strain-outcome framework, showed that harmful social media use increased technostress and exhaustion, which then interfered with academic performance during COVID. Duan et al. (2025) built on this to show that social media overload reduced learning engagement via ego depletion, moderated by willpower beliefs and time pressure. This is particularly relevant for understanding learning behavior because it moves the analysis past "how much time do you spend" and shows clear psychological resource depletion as a mechanism connecting heavy engagement in social media environments to reduced engagement. Addictive or compulsive use is another area of recurring negative outcome. Landa-Blanco et al. (2024) reported that social media addiction had an overall negative effect on academic engagement, which was mediated by self-esteem and depression. Roque Herrera et al. (2025) also found that social media addiction predicted academic engagement among college students, suggesting that problematic intensity of use is not a parallel habit but a risk factor for education. A broad certificate approach also led to similar conclusions: Salari et al. found a negative relationship between social networking addiction and students' academic performance overall (Salari et al., 2025).

The most sophisticated studies from this period no longer limit themselves to correlation; they endeavor to identify mediators and moderators. This is where the literature is at its most useful. Gong et al. show that social media use had a harmful direct effect on the academic performance of college students, and that social anxiety and fear of missing out served as mediators, while teacher-student relationships moderated the harmful effect of FoMO on performance (Gong et al., 2025). This is crucial because it shows that academic harm from social media is not simply behavioral—time wasted on phones instead of study —but affective and relational as well. Students can remain cognitively distracted by social monitoring, social comparison, and nervousness even in learning contexts where they are physically present. Tang et al. (2025) provided a similar explanation for procrastination. As in several other studies, social media addiction positively predicted procrastination for Chinese college students, with an impact mediated both by lack of self-control and fear of missing out. The key contribution lies in the identified mechanism; it is not simply that students are enjoying social media

use, but that habitual checking behavior weakens self-control and makes avoidance of the more scrupulous academic task more likely to occur. Learning behavior, therefore, is altered not only in the moment of media exposure but in later task initiation and persistence.

Self-regulation shows up as an important factor here too. Mardiana (2026) called self-regulation a moderator of the tie between social media use and academic engagement, while Duan et al. (2025) link engagement outcomes to ego depletion and willpower belief. The latter authors as well as earlier ones have picked up on this, but now it is clear students are best served when social learning happens on social platforms to the degree that they are able to control their own attention, define a purpose to the task, and negotiate boundaries of limiting time engaging with it. When those capacities are broken, even the same platforms are more likely to experience distraction, stress and avoidance. Socioeconomic and developmental differences also matter. Hou et al. (2024) looked at Chinese children and adolescents and found that the number of social media platforms used was positively associated with academic performance, with online learning behavior and prosocial behavior acting as mediators; and importantly it was a stronger effect among students from lower socioeconomic backgrounds. This does not contradict the risk literature. It indicates that under some conditions social media can offset unbalanced access to education by extending the learning opportunity outside of a physical school system. The services that distract away one kind of learner can add to the informational capital to another. That's exactly why deterministic arguments are unsatisfactory.

Systematic reviews from this period provide further evidence for the impression of confusion in public debate. Otchie and Pedaste's (2020) review of social media uses in high-school education identified multiple examples of uses, concluding that social media can successfully promote interaction, communication, information sharing, and collaboration, but that educational design is nonetheless crucial. Masrom et al. (2021) reviewed 104 studies of student behavior in online social networks and concluded that the field is wide in scope and fragmented theoretically, often more concerned with attitudes, participation, and sharing knowledge than with learning as measured carefully by educational researchers. Perez et al. (2023) provided one of the most useful higher-education syntheses in the period. Their review showed a growing body of research on social media as a teaching and learning tool in higher education, but also a relative lack of theoretically grounded studies focused on robust pedagogical integration. They noted that much literature is focused on attitudes, intentions, and satisfaction rather than carefully theorized and measured learning. This is important to note for field interpretation: apparent inconsistency in the

evidence is partly a design problem. Different studies define “social media use” and “learning” in different ways, making naïve comparison misleading.

A recent systematic review examining the impact social networking sites have on the academic performance of university students identified both positive and negative impacts. The review found that researchers commonly reported positive impacts when social networking site usage was focused on educationally related interactions, whereas negative impacts were more often reported on excessive amounts of unstructured entertainment-based social networking site use (Masalimova et al., 2023). This review, along with previous reviews mentioned above, illustrates a pattern that is difficult to dispute: both pedagogical benefits and behavioral benefits are less than comparable between social media platforms; therefore, social media should be integrated into the educational process with careful guidance as opposed to autonomously through indiscriminate usage. From an educational perspective, the findings suggest designing shared or functional spaces that allow for inclusion of social media as opposed to isolation through non-utilization of social media. There must be an inclusion of social media when its affordances support the completion of a specific learning task, for example, collaborative discussion, peer evaluation and/or feedback, rapid communication, reflective assignment submissions, knowledge curation, and/or community development within an environment that closely mirrors traditional social media use (Wang et al., 2022; Liu et al., 2022; Perez et al., 2023). Therefore, tasks that require sustained focus, complex argumentation, and extensive reading will be hindered by constant interruptions and continuous stream of notifications. Thus, the curricular implication is clear: social media should be leveraged to assist in the completion of tasks that require significant interaction versus creating a substitute for traditional methods of study. Secondly, in addition to teaching students how to navigate the technical constraints of using social media, we must also provide them with appropriate behavior training as it pertains to the completion of social media tasks. The reviewed literature supports the findings of newer studies that have shown that the mediating factors of outcomes achieved through social media can be partially attributed to motives for using social media, self-control for utilization of time while utilizing social media, time management practices for maintaining a balance of use of social media, and emotional regulation while utilizing social media (Cuong et al., 2025; Gong et al., 2025; Tang et al., 2025; Mardiana, 2026). As a result, students need to be provided with instruction on how to manage their use of social media, including establishing boundaries, managing notifications, intentionality when selecting platforms for engagement, evaluating the sources of information gathered on the platforms, and minimizing their engagement in multitasking. In the absence of these supports,

students will not develop responsible habits for managing their access to social media as a source of promoting successful learning behaviors. Thirdly, there is a need for the presence of an educator when supporting students who are learning through social media. The above article (Gong et al., 2025) identified the importance of establishing and maintaining positive educator-student relationships, therefore providing educators with invaluable relational support to minimize emotional costs associated with participating in social media. Therefore, educational programs should not presume that the traditional educator-student relationship can be replaced by digital communication between students and other students or educators that utilize social media. Structured prompts, response norms and timelines, moderation practice, and instructor feedback turn social media from a source of noise to a source of learning. Fourth, interventions should be tailored to the learner profile: those who have high self-efficacy, clear academic motives, or strong self-regulation are better positioned to take advantage of social media-supported learning, while students in need of more intensive supports due to problematic use patterns, anxiety, low self-esteem or weak self-control may be best protected by interventions (Liu et al., 2022; Landa-Blanco et al., 2024; Tang et al., 2025). In other words, not universal encouragement, and not universal restriction, but targeted scaffolding.

Nevertheless, there are several methodological shortcomings in recent research as well. First, much of the literature is cross-sectional in nature, making it often difficult to truly infer the direction of influence (rather than assume it). More motivated students could be using social media more effectively for academic purposes; or weaker students could be 'pulled' by less adaptive patterns of use (Patel et al., 2022). Second, self-report measures are prevalent in the studies of time spent, motive for engagement with the platform, and perceived performance (Perez et al., 2023; Masrom et al., 2021). Third, "social media" is sometimes treated too broadly—a blanket term for platforms that differ by modality, tempo, algorithmic design, and social visibility. Studies treating WhatsApp, TikTok, Twitter, and Instagram as similar enough that all their features can be collapsed into one factor risk glossing over differences. Fourth, educational context is a critical factor. Differences across high school, undergraduate, and medical education, as well as informal learning communities, make broad generalizations across contexts problematic. Finally, literature needs more longitudinal, experimental, and trace-data-based studies of social media as it is used. Many of the existing studies of social media and study habits reflect views of social media from a year or so ago rather than testing the different ways that social media usage correlates or even physically interacts with study habits.

The evidence coming out between 2020 and 2026 suggests a clear and balanced conclusion. Social media is not automatically educationally beneficial, nor is it uniformly toxic. It is a highly variable learning context, the effects of which depend upon user motives, platform-task fit, group structure, emotional dynamics, and student self-regulation. Academically productive, appropriately guided usage can increase access to information, peer interaction, group learning, and satisfaction and engagement (Ashraf et al., 2021; Al-Rahmi et al., 2022; Wang et al, 2022; Mardiana, 2026), whereas problematic, overloaded, addictive, or indiscriminately emotional usage can detract from attention, increase technostress, exacerbate anxiety and FoMO, and contribute to procrastination and poorer academic outcomes (Homaid, 2022; Landa-Blanco et al., 2024; Gong et al., 2025; Duan, et al., 2025; Tang et al., 2025). The objective of educational programs is no longer to determine whether students will use social media; instead, it is to identify ways in which educational institutions can create disciplinary, purposeful, and pedagogically valuable social media use among their students. Future research should move beyond platform-based generalizations and employ mechanism-based models to identify the conditions under which social media use enhances student learning behaviors, the learners most affected, and the instructional contexts in which these effects occur. Currently, it seems that social media has the greatest potential to positively impact student learning behaviors when there is an identifiable academic purpose for the usage of social media, and there are enforced systems of self-regulation. If these two factors do not exist, students who use social media for connection may also experience social fragmentation.

Kaynaklar

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