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Analysis of the Turkish Education System from the Perspective of European Union Quality Indicators

Türk Eğitim Sisteminin Avrupa Birliği Kalite Göstergeleri Perspektifinden Analizi

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Abstract

The Education has always been crucial for development worldwide. In a globalizing world, it is inevitable to consider international standards in achieving development goals. The European Union plays a significant role as an organization promoting cooperation and harmony among countries. In this context, it has identified four main areas for improving the quality of education, establishing sixteen indicators related to these areas. Türkiye has declared willingness to align with the education policies proposed by the European Union. Therefore, in today's increasingly competitive international environment, the question of how compatible and competitive the Turkish education system is with international standards is important. In this regard, this study aims at analyzing the current state of the Turkish education system according to the quality indicators in education set forth by the European Union, focusing on areas such as achievement and transition, education monitoring, resources and structures. Utilizing document analysis methodology, this study examines the current state of the Turkish education system using various sources such as PISA 2022 and Turkish Statistical Institute (TÜİK) data. The study results show that although the Turkish education system has shown progress in the areas addressed, further steps are needed, particularly in areas such as school dropout and pre-school education. This study is expected to contribute to creating an education system closer to international standards by identifying the strengths of the Turkish education system while also highlighting potential improvements.

Keywords: European Union, Quality Indicators in Education, School Dropout, Transition to Higher Education, Parental Involvement in Education, PISA 2022, TUIK 2022.

Öz

Eğitim, sürdürülebilir kalkınma için dünya genelinde her zaman hayati bir öneme sahiptir. Ancak küreselleşen dünyada, kalkınma hedeflerine ulaşmak için uluslararası standartları dikkate almak kaçınılmazdır. Avrupa Birliği, ülkeler arasında iş birliği ve uyumu teşvik eden bir örgüt olarak önemlidir. Bu çerçevede, eğitim kalitesini artırmak için belirlenen dört ana

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alan ve bu alanlara yönelik on altı gösterge belirlemiştir. Türkiye, Avrupa Birliği'nin önerdiği eğitim politikalarına uyum sağlama konusundaki iradesini açıklamış bir aday ülkedir. Bu nedenle, günümüzde her alanda artan uluslararası rekabet ortamında, Türk eğitim sisteminin uluslararası standartlara ne kadar uygun ve rekabetçi olduğu konusu önemli bir gündem maddesidir. Bu doğrultuda, bu çalışma, Türk eğitim sisteminin mevcut durumunu Avrupa Birliği'nin ortaya koyduğu eğitimde kalite göstergelerinden başarı ve geçiş, eğitimin izlenmesi, kaynaklar ve yapılar alanlarına göre analiz etmeyi amaçlamaktadır. Doküman analizi yönteminin benimsendiği bu çalışmada PISA 2022 ve TÜİK verileri dahil olmak üzere çeşitli kaynaklar incelenerek Türk eğitim sisteminin mevcut durumu incelenmiştir. Çalışma sonucunda, Türk eğitim sisteminin çalışmaya konu olan alanlarda gelişmeler göstermekte olmasına rağmen özellikle okul terki ve okul öncesi eğitim gibi alanlarda daha fazla adım atılmasına ihtiyaç duyulduğu ortaya çıkmıştır. Bu çalışmanın, Türk eğitim sisteminin güçlü yönlerini belirlerken aynı zamanda potansiyel iyileştirmeleri vurgulayarak uluslararası standartlara daha yakın bir eğitim sistemi oluşturma hedefine katkı sağlaması beklenmektedir.

Anahtar kelimeler: Avrupa Birliği, Eğitimde kalite göstergeleri, okul terki, yükseköğretime geçiş, ailelerin eğitime katılımı, PISA 2022.

Introduction

Quality in education is increasingly attracting attention at both national and international levels. While many institutions are conducting national-level studies to determine quality in education, leading international organizations in this field include the European Union (EU) and the Organization for Economic Cooperation and Development (OECD) (Snyder, 2007). The EU is at the forefront of an integration process conducted within the framework of various indicators aimed at determining and enhancing quality standards in education. The EU's quality indicators in education aim to establish an educational standard among member states, promoting a competitive and sustainable education system across Europe. These indicators encompass objective criteria used to assess educational success, develop policies and make international comparisons (EC, 2000). By establishing quality standards in education, the EU aims to enhance the international competitiveness of students and educational institutions, adopting a strategic approach to continuously improve educational systems in this context.

The European Union's indicators determining quality in education emerged as part of the Lisbon 2010 strategy, adopted at the European Council meeting held in Barcelona in 2002, with the aim of supporting global competitiveness and sustainable economic growth. This strategy intended to position the European Union countries as global leaders in education and training. Within the framework of the Lisbon 2010 strategy, the European Union established the "Group on Measuring Progress with Indicators and Benchmarking" to monitor the progress of member states and enhance quality in education. This group, in collaboration with international organizations, identified key areas and indicators that determine quality in education. Table 1 below presents these areas and indicators.

Table 1. The European Union's Areas and Indicators on Quality of School Education

Areas	Indicators
Attainment	1. Mathematics
	2. Reading
	3. Science
	4. Information and Communication Technologies (ICT)
	5. Foreign languages

	6. Learning to learn
	7. Civics
Success and transition	8. Drop out
	9. Completion of upper secondary education
	10. Participation in tertiary education
Monitoring of school education	11. Evaluation and steering of school education
	12. Parental participation
Resources and structures	13. Education and training of teachers
	14. Participation in pre-primary education
	15. Number of students per computer
	16. Educational expenditure per student

Source: European Commission, 2000.

As seen in Table 1, there are four main areas determining quality in education, along with 16 related indicators. Examining the extent to which the quality education targeted by these areas and indicators has been achieved is considered crucial for evaluating, improving and standardizing the effectiveness and quality of educational systems. Such an examination is deemed necessary to ensure quality in education, promote continuous improvement and encourage a sustainable education system. A review of the literature reveals that such an examination has been conducted in the context of Türkiye (Gültekin & Anagün, 2006). However, it is considered necessary to renew this evaluation with updated data to accurately reflect the current state of the Turkish education system. In this context, the aim of this study is to comprehensively assess the current state of the Turkish education system in the light of updated data within the framework of the EU's quality indicators in education. This study will contribute to the goal of creating an education system closer to international standards by identifying the strengths of the Turkish education system while also highlighting potential areas for improvement. Within this scope, the following research questions will be addressed in this study:

1. What is the current state of the Turkish education system in terms of indicators of success and transition?
2. What is the current state of the Turkish education system in terms of indicators of monitoring of school education?
3. What is the current state of the Turkish education system in terms of indicators of resources and structures?

Method

This study employed the method of document analysis, one of the qualitative research methods. Document analysis, a widely used method in social sciences, offers researchers the opportunity to learn and derive meaning from existing documents (Krippendorff, 2004). In this context, as Fischer (2006) points out, document analysis refers to the systematic processing and analysis of information obtained from printed and electronic documents. It also aims to provide comprehensive answers to research questions through a detailed examination of the literature and existing documents (Miles & Huberman, 1994). In this study, to evaluate the current state of the relevant areas of the Turkish education system, we examined the PISA 2022 report, data from TÜİK (Turkish Statistical Institute), YÖK (Council of Higher Education) and MEB (Ministry of National Education). The reason for using the PISA 2022 report to obtain the necessary data to evaluate the current state of the Turkish education system is that PISA is a program that

assesses the academic performance of students worldwide, thereby providing internationally comparable results. Additionally, the fact that PISA data is collected and analyzed by the OECD, an impartial organization, contributes to the neutrality and reliability of the data. On the other hand, TÜİK data has also been included in the study because it contains official statistics in Türkiye and reflects Türkiye's social and economic context. During the data analysis process, we examined the collected documents using the content analysis method. In addition to the PISA 2022 report and TÜİK data, various policy documents published by institutions such as YÖK (Council of Higher Education) and MEB (Ministry of National Education) were included in the research. Validity refers to whether the data and conclusions are accurate and measure what they claim to measure. Reliability refers to the consistency of the data or results—whether the same data or findings would hold true across multiple observations or studies. Since the study data was based on existing official and published documents, the validity and reliability of the study were directly based on the validity and reliability of these documents. In this context, as the official and published documents used in this study as sources were valid and reliable, it is possible to state that the study met the validity and reliability criteria.

Findings

This section of the study presents the findings obtained from the document analysis of the relevant documents.

The current state within the framework of indicators of success and transition

The first research question in the study is, “What is the current state of the Turkish education system in terms of indicators of success and transition?” Accordingly, we examined the dropout rates, secondary education completion rates and transition rates to higher education, which fall under the area of success and transition. In this section of the study, the findings related to each indicator are presented under separate headings.

Drop out

The concept of school dropout is defined as a student leaving school during the educational process for various reasons (MEB, 2013). The factors influencing school dropout are highly complex and multifaceted. In addition to personal factors such as self-confidence, motivation and disability, factors related to peer relationships, socioeconomic status, societal barriers and family play a significant role in school dropout. Self-confidence, motivation and disability are fundamental elements that shape the student's individual experiences (Jimerson, Reschly & Hess, 2008). Peer relationships, such as the influence of the student's friend group, being part of a group with poor behavior or being in an environment with low academic achievement, can affect the student's commitment to school (Henry, Knight & Thornberry, 2012).

Societal factors encompass various dynamics that contribute to student dropout. A student's socioeconomic status affects their access to and continuation in education, depending on the family's economic resources and material conditions (Rumberger, 2011). Additionally, students who are forced to work at a young age face the challenge of balancing education with employment. Furthermore, barriers to girls' access to education are shaped by cultural norms, traditional gender roles and the priority given to girls' education in some societies (Rumberger, 2011). This situation brings about the issue of

gender inequality in education, which has the potential to increase the risk of school dropout among girls.

On the other hand, adaptation issues that arise with rural-to-urban migration are another societal factor affecting school dropout. The process of adapting to a new environment can have negative impacts on students' social and academic success (Rumberger, 2011). Additionally, factors related to the family, such as intra-family communication, influence a student's ability to receive emotional support and maintain motivation. Family-parent communication is crucial for the child's active participation in and guidance through the educational process (Dynarski et al., 2008). The cost of education, which includes the family's economic status and education-related expenses as well as situations of domestic violence and the number of children in the family, are also significant factors determining the student's relationship with school.

According to a study conducted by the American National High School Center on risk factors for school dropout, the general characteristics of students at risk of dropping out include receiving low grades in core subjects, failing a grade, disengaging from coursework and exhibiting behavioral problems (Bridgeland, Dilulio & Morison, 2006). Additionally, it is emphasized that there are three primary factors that significantly increase the risk of school dropout and absenteeism among students (Balfanz & Byrnes, 2006). These factors are listed as students' sociocultural characteristics, educational characteristics and school characteristics.

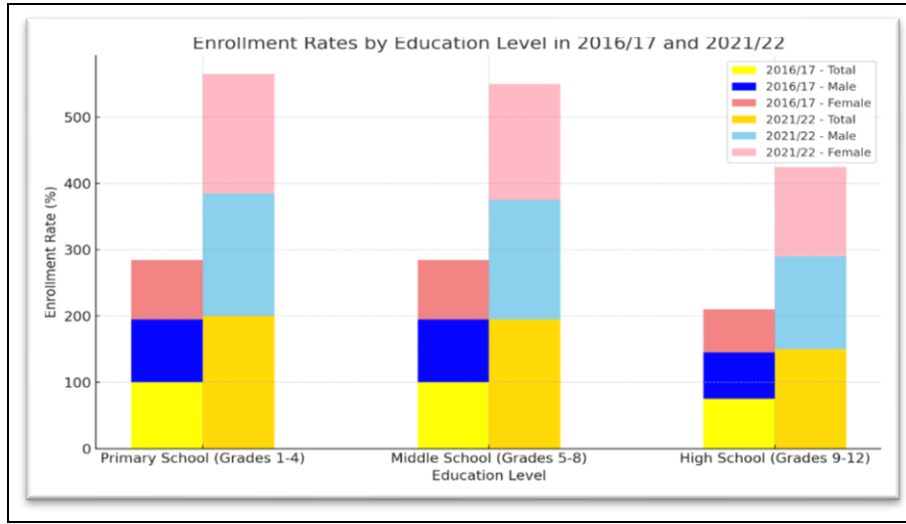
According to Eurostat data, Türkiye ranked first in Europe in terms of student dropout rates in 2018, indicating that approximately 40% of individuals aged 18 to 24 leave school without completing their education (Euronews, 2024). The 2023 report by the Student-Parent Association reveals that, in the 2021-2022 academic year, 570,293 children were not enrolled in any educational institution (ankarahaber.net, 2024). In 2021, Türkiye recorded the highest school dropout rates in the region, which includes the Western Balkans, with rates of 27.5% for males and 25.8% for females among those aged 18 to 24 (Eurostat, 2023). These statistics highlight that the dropout rates in Türkiye are the highest in Europe, particularly among young individuals who leave school without completing their secondary education. This can be regarded as a significant indicator of certain deficiencies within the education system and the influence of socio-economic factors.

Completion of upper secondary education

Completing upper secondary education, which refers to final years of higher education, is crucial for individuals' personal development, employment opportunities and social participation. This educational stage equips students with fundamental skills as well as important competencies such as analytical thinking, problem-solving abilities and social adaptation (Rumberger, 2011). Therefore, completing upper secondary education serves as a significant foundation for individuals' future success. Indeed, it has been emphasized that completing upper secondary education increases individuals' lifetime earnings and their competitive advantage in the labor market (OECD, 2019). Additionally, individuals who have completed upper secondary education tend to have lower unemployment rates and more stable careers. Consequently, the importance of completing upper secondary education extends beyond individual personal development; it also has significant implications for the economic development of the society.

Figure 1 below presents the completion rates for upper secondary education and other educational levels in Türkiye.

Figure 1. School Completion Rates by Gender and Year



Source: TÜİK, 2023c.

As illustrated in Figure 1, there has been an observable increase in school completion rates in Türkiye over the years. The primary education completion rate was recorded at 98.3% in the 2016-2017 academic year and increased slightly to 98.4% in the 2021-2022 academic year. The lower secondary education completion rate rose significantly from 88.9% in the 2016-2017 academic year to 96.4% in the 2021-2022 academic year. When examining the upper secondary education completion rates, which are among the indicators projected by the European Union, an increase from 62.9% to 77.9% is observed. Furthermore, when analyzing the secondary education completion rates by gender for the 2021-2022 academic year, it was found out that the rate was 76.2% for male students and 79.6% for female students.

These data on school completion rates indicate an overall upward trend in Türkiye's school completion rates. Notably, there is a significant increase in the completion rates at both the lower secondary and upper secondary education levels. Moreover, it is observed that the school completion rate for female students at the secondary education level is somewhat higher than that of male students. These findings suggest that there is a positive trend in school completion rates influenced by educational policies.

Participation in tertiary education

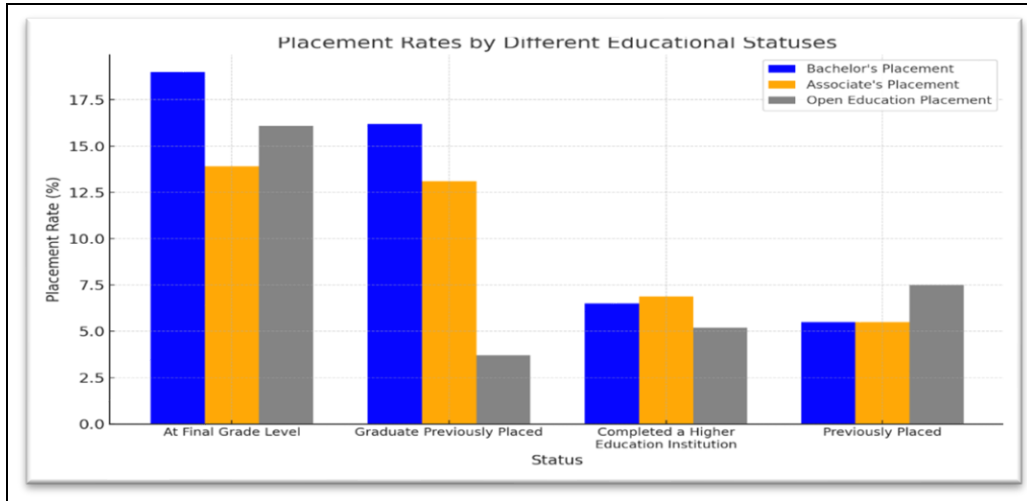
Higher education institutions have undergone a significant transformation in recent years to respond to the evolving needs of the labor market and to equip students with the necessary skills (European Commission, 2000). Higher education offers young individuals unique opportunities to adapt to the demands of today's world. Therefore, it is possible to establish a connection between higher education and development. In this context, the number of students enrolled in tertiary education can provide insight into the opportunities offered by a country's higher education system.

In Türkiye, the net enrollment rate in higher education increased from 14.65% in the 2002-2003 academic year to 43.37% in the 2019-2020 academic year (MEB, 2022).

Currently, there are a total of 203 universities in the country, comprising 129 public universities and 74 private universities. Including the National Defense University and four private vocational colleges, the total number of higher education institutions has reached 208. In the 2021-2022 academic year, the number of students enrolled in higher education reached 8,240,997, making Türkiye the second country in Europe with the largest number of higher education students. This student population includes 3,114,623 associate degree students, 4,676,657 undergraduate students, 343,569 master's degree students and 106,148 doctoral students.

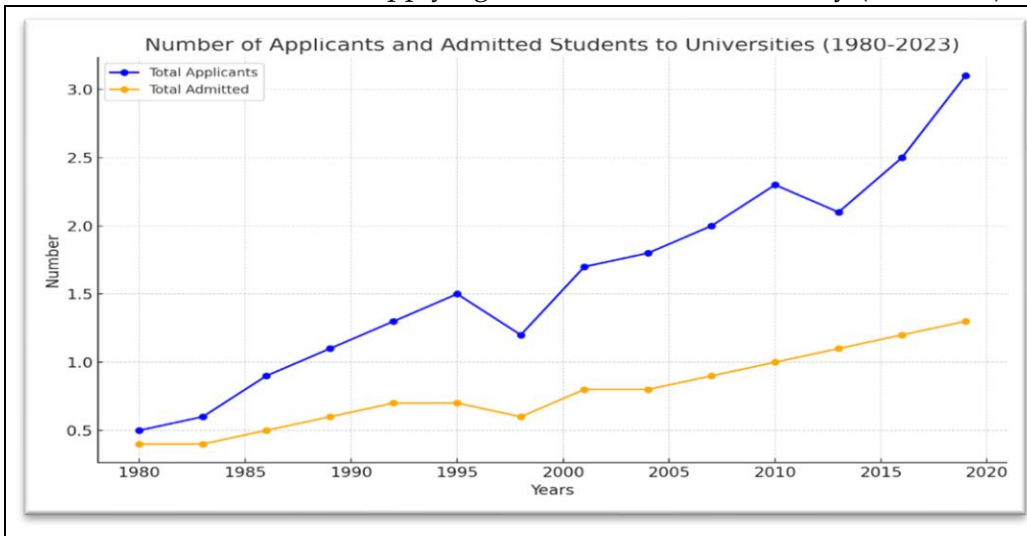
As observed, there has been an increase in the number of students in higher education over the years. The most recent data on transitions to higher education pertains to the year 2023. In 2023, the ratios of candidates who applied for and were placed in higher education institutions based on school types within the framework of the university entrance exam (YKS) are presented in Figure 2, while the number of candidates who applied for and were placed in universities between 1980 and 2023 is shown in Figure 3.

Figure 2. 2023-YKS Candidate Placement Rates by Educational Status



Source: YÖK, 2023.

Figure 3. Number of Candidates Applying to and Placed in University (1980-2023)



Source: YÖK, 2023.

As seen in Figure 2, the transition rates to higher education for final-year high school students, previously unplaced graduates, those who have completed a higher education institution, and those who have previously been placed remain below 50%. In other words, there is a significant disparity between the number of candidates who applied for the entrance exam and the number of candidates who were placed in a university. However, as shown in Figure 3, from 1980 to 2023, there has been an increase in both the number of candidates applying for university admission and those who were placed in a university. Although the growth in the number of applicants does not occur at the same pace, there is an increase in the number of candidates placed in universities. As a result, it is evident that interventions in the system have significantly affected students' transitions from primary to secondary education and from secondary to higher education, leading to notable changes in placement rates and transitions to higher education.

Figures 2 and 3 illustrate the ratios and numbers of candidates applying for and being placed in higher education. Additionally, another dataset that could provide insight into the transition rates from secondary to higher education is the comparison between enrollment rates at the levels preceding higher education and the enrollment rate in higher education. Table 2 presents the enrollment rates by educational level for the years 2019-2022.

Table 2. School Enrollment Rate by Education Level Between 2019 and 2022 (%)

Level of Education	2019-2020	2020-2021	2021-2022
Pre-school (3-5 years old)	41,8	28,3	44,1
Primary	97,4	93,2	93,2
Lower secondary	95,9	88,9	89,8
Upper secondary	85,0	87,9	89,7
Tertiary	43,4	44,4	44,7

Source: TÜİK, 2023b.

As shown in Table 2, the enrollment rate in higher education increased from 2019 to 2022, reaching 44.7%. However, in the 2021-2022 academic year, the enrollment rate in upper secondary education was 89.7%, while the enrollment rate in higher education was 44.7%. This comparison indicates a decrease in the enrollment rate when transitioning from upper secondary education to higher education.

As emphasized in the OECD's 2017 Education Outlook Report, a rapid increase in the transition from upper secondary to higher education has been observed globally. This increase can be considered a result of educational policies implemented to better respond to labor market demands due to economic and technological changes as well as to enable individuals to access more qualified career opportunities. However, despite the increase in the proportion of students studying in higher education in Türkiye, there has been a decrease in the transition from upper secondary to higher education; in other words, there is a decline in the enrollment rates of high school graduates in universities.

The current state within the framework of indicators for monitoring education

The second research question of the study is, "What is the current state of the Turkish education system in terms of indicators of monitoring of school education?" In this context, we examined the areas of education management and evaluation as well as

parental involvement. In this section of the study, findings related to each indicator are presented under separate headings.

Management and Evaluation of Education

One of the significant steps taken in the field of education with the establishment of the Turkish Republic was the Law on the Unification of Education (*Tevhidi Tedrisat Kanunu*). This law was enacted on March 3, 1924, and led to a reorganization of the national education system. To train the administrative and educational staff of the educational institutions of that era, the Pedagogy Department was established within the Gazi Education Institute in 1928. In 1953, the Türkiye and Middle East Public Administration Institute (TODAİE) was founded to address the educational needs of public personnel and offered professional development programs for educational administrators (Recepoglu & Kılınç, 2014). The Faculty of Education at Ankara University was established in 1964 and was transformed into the Faculty of Educational Sciences in 1982. Within this faculty, the Department of Educational Management, Inspection, Planning and Economics was established. Similar departments were later opened at Gazi University, Hacettepe University, İstanbul University and 9 Eylül University, contributing to the training of administrators and inspectors for the Turkish education system. However, in 1997, the practice of providing undergraduate education in these departments was terminated, and education continued only at the graduate level (Cemaloğlu, 2005).

The training of school administrators has also been addressed in National Education Councils, and as a result of these efforts, a regulation published by the Ministry of National Education in 1998 introduced the requirement for training to appoint school administrators for the first time (Can & Çelikten, 2000). Under this regulation, it became mandatory to successfully pass a selection exam and then complete at least 120 hours of in-service training to become a school administrator. However, this practice was later abolished, as it was considered the beginning of professionalization in management. The methods of appointing administrators have undergone numerous changes over time. Although various prerequisites exist for the positions of school principal and vice-principal, school administrators are not required to participate in any standardized in-service training programs to support their development after starting their positions; instead, they acquire managerial skills primarily through practice and personal experiences.

Parental involvement

Parental involvement encompasses the active participation and support of families in the educational process. Parents' engagement in their children's education leads to improved student performance in school, higher academic motivation and a more positive approach to the educational process (Fan & Chen, 2001; Hill & Taylor, 2004). However, there are also studies addressing the challenges faced in the implementation of family involvement in educational systems and the impact of different family profiles. Sanders (2008) emphasizes the need for greater efforts to promote the active participation of families with low socioeconomic status in educational processes, highlighting the challenges associated with this endeavor.

Research conducted worldwide and in Türkiye indicates that family involvement programs are primarily designed and implemented for parents of children in preschool and primary education. However, it can be stated that there are a limited number of such programs in schools in our country. Conducting analyses to determine the needs of parents in schools, developing appropriate programs based on these analyses, testing the effectiveness of these programs, and sharing the results will contribute to the more systematic and widespread implementation of such programs (Kocabaş, 2006).

In the research conducted by Erdoğan and Demirkasımoğlu (2010), the following actions are suggested: Both educators and families should be made aware of the importance of parental involvement in the educational process. Families should be informed that education is not solely the responsibility of schools but that they also carry significant responsibilities in this process, and that family involvement is crucial in achieving quality education. In this regard, campaigns highlighting the importance of school-family collaboration should be organized, seminars and training programs should be developed, and general awareness should be created using media and communication channels. To enhance school-family collaboration, the scope of school-family associations should be expanded, and parents' participation in decision-making on non-expert issues should be encouraged. Furthermore, assigning one of the assistant principals a specific role in communication with parents could be a significant step in addressing this gap. It is recommended that parent representatives, who represent the parents of each class, hold regular meetings with this assistant principal to facilitate direct and effective communication between parents and the school. Such an implementation is believed to enable parents to quickly and effectively convey their issues to the school administration and to provide the school management with rapid feedback on educational practices, thereby positively contributing to the quality of education at the school.

The current state within the framework of indicators of resources and structures

The third research question of the study is, "What is the current state of the Turkish education system in terms of indicators of resources and structures?" In this context, we examined the training and development of teachers, participation in preschool education, the number of computers per student, and the education budget per student. In this section of the study, findings related to each indicator are presented under separate headings.

Education and training of teachers

The teacher training process, which was based on the madrasa system during the Ottoman Empire, underwent significant changes during the Tanzimat Period. In this era, the establishment of the Darülmüallimin, or teacher training school, in İstanbul in 1848 marked the beginning of the modern teacher training process (Şişman, 2005). In the following years, alongside the modernization efforts in education, the teacher training process became more systematic and institutionalized (Akman, 2007).

In Türkiye, teachers generally graduate from universities' faculties of education. With the educational law enacted in 1982, the teacher training process was transitioned to four-year undergraduate programs. Teacher candidates acquire theoretical and pedagogical knowledge through these programs and gain field experience during their internship periods. In the 2022-2023 academic year, a total of 202,080 students were

enrolled in 93 faculties of education in Türkiye (YÖK, 2023). Additionally, teachers in Türkiye are appointed through examinations and appointment methods conducted by the Ministry of National Education. Teacher placements are typically carried out through the KPSS (Public Personnel Selection Exam), and the placement process is based on the scores of teacher candidates.

The professional development of teachers is supported by various training and activities after their appointment. Throughout their careers, teachers update their knowledge and skills by participating in various professional development programs. Additionally, experience sharing among teachers, mentoring and a culture of continuous learning are encouraged (Kızılöz, 2019).

Table 3 below presents the number of teachers in Türkiye and the participation rates in in-service training between the years 2012 and 2018.

Table 3. Number of Teachers and In-Service Training Participation Rates Between 2012 and 2018

Year	Number of Teachers (TÜİK)	Number of In-Service Training	Number of Participants in In-Service Training	Ratio of Total Number of Teachers to Education Fields
2012	751.666	20.280	670.087	56
2013	806.697	16.155	445.084	37
2014	847.889	15.596	447.137	37
2015	889.695	21.341	561.648	40
2016	896.584	37.798	1.729.016	76
2017	904.679	27.752	1.047.477	53
2018	920.524	35.408	1.181.246	77

Source: İGEDER, 2020.

As shown in Table 3, the participation rates of teachers in professional development programs in Türkiye fluctuated between 2012 and 2018. The participation rate was 57% in 2012 and reached 77% in 2018. This rate represents the highest level observed between 2012 and 2018. Additionally, there has been an increase in the number of in-service training sessions offered to teachers over the years. While 20,280 in-service training activities were provided in 2012, this number rose to 35,408 in 2018. Consequently, there has been an increase in both the number of in-service activities offered to teachers and the number of teachers benefiting from these activities.

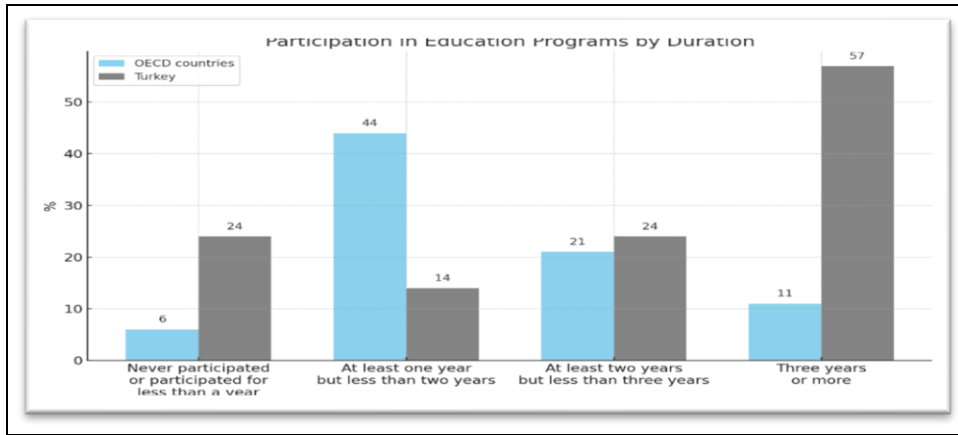
Participation in pre-primary education

Participation in pre-primary education is considered a fundamental element in supporting children's cognitive, emotional, social and physical development (Barnett, 2011). The literature indicates that high-quality preschool education during early childhood has positive effects on various areas, including the development of language skills, interest in learning, problem-solving abilities and social adjustment (Duncan & Magnuson, 2013; Pianta et al., 2007). Furthermore, findings suggest that starting preschool education at an early age increases the likelihood of children being more successful in subsequent educational stages (Heckman, 2006). In this context, participation in preschool education appears to play a significant role in creating a sustainable learning foundation

throughout children's lives and reducing educational inequalities (Gormley et al., 2005; Yoshikawa et al., 2013).

Therefore, the enrollment of students in preschool education is viewed as a factor that positively influences their subsequent educational success and enhances the quality of education. Indeed, a difference is observed in the reading, mathematics and science achievements of students who have attended preschool education compared to those who have not. Figure 4 below presents the participation rates in preschool education in Türkiye according to the PISA 2022 data.

Figure 4. Participation in Pre-Primary Education

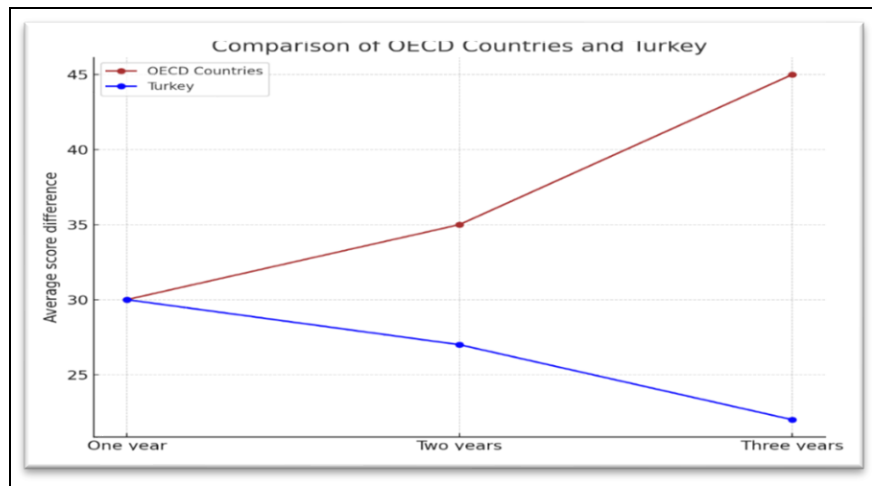


Source: MEB, 2023.

As shown in Figure 4, the majority of students aged 15 in OECD countries have attended preschool education for three years or more (57%), while 24% have participated for two years, and 14% for one year. In Türkiye, however, 44% of students attended preschool education for one year, 21% for two years, and 11% for three years or more.

The PISA 2022 results analyze the connection between preschool attendance and students' mathematics performance. Figure 5 below presents relevant data showing the score changes in mathematics performance between students who have never attended preschool or attended for less than one year and those who attended for one year or more, both in Türkiye and OECD countries.

Figure 5. Participation in Pre-School Education and Mathematics Performance



Source: MEB, 2023.

As shown in Figure 5, attending preschool education for one year results in a 24-point increase in mathematics performance for OECD countries, while in Türkiye, this increase is 30 points. This result highlights the difference in mathematics performance between students who have never attended preschool and those who have attended for one year. Accordingly, it appears that participation in preschool education has a significant impact on mathematics performance. This positive difference in mathematics scores suggests that preschool education is an effective factor in enhancing students' mathematical skills. In this context, preschool education can positively influence students' understanding of mathematical concepts, thereby enhancing their overall mathematics success. Based on the relevant data, it can be concluded that preschool education plays a critical role not only in acquiring fundamental knowledge but also in developing a deeper understanding of mathematical topics.

Number of students per computer

Burtless (2011) emphasizes the role of high-quality educational materials in enhancing student achievement, noting that diversified materials positively influence student learning processes. While educational materials affect student motivation and cognitive development, appropriate levels of difficulty and coherence can be decisive for academic success (Archibald, 2006).

Table 4 below presents the data regarding the educational material deficiency index in schools based on socioeconomic status in Türkiye and other OECD countries.

Table 4. Educational Material Deficiency Index According to Schools' Socioeconomic Status

	Index of lack of educational materials	Socioeconomic Status			Difference between advantaged and disadvantaged schools
		Disadvantaged schools	Average-level schools	Advantaged schools	
Singapore	-1.13	-1.13	-1.07	-1.26	-0.13
Qatar	-0.93	-0.68	-0.95	-1.15	-0.47
Switzerland	-0.8	-0.71	-0.84	-0.8	-0.09
Denmark	-0.8	-0.63	-0.74	-0.98	-0.29
Canada	-0.74	-0.56	-0.71	-0.91	-0.29
Turkey	-0.57	-0.32	-0.52	-0.91	-0.59
OECD Average	-0.17	-0.07	-0.19	-0.39	-0.32
Kosovo	1.0	1.35	1.05	0.54	-0.81
Jamaica	1.02	1.23	1.12	,0.62	-0.63
Mongolia	1.09	1.41	1.13	0.44	-0.97
Palestine	1.12	1.19	1.12	0.31	-0.31
Morocco	1.26	1.55	1.35	,0.6	-0.77

Source: MEB, 2023.

As shown in Table 4, when comparing socioeconomically disadvantaged schools to advantaged schools in Türkiye, disadvantaged schools are more likely to experience a shortage of educational materials and resources (difference -0.59). The difference observed in school characteristics is statistically significant for both Türkiye and other OECD countries.

Table 5 below presents the information regarding the lack of digital resources in schools based on their socioeconomic status in Türkiye and other OECD countries.

Table 5. Digital Resource Deficiency According to Schools' Socioeconomic Status

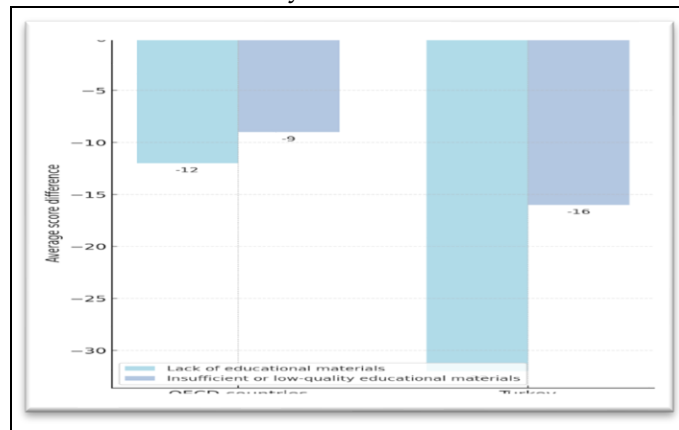
	Socioeconomic Status				Difference between advantaged and disadvantaged schools
	All Students	Disadvantaged schools	Average-level schools	Advantaged schools	
	%	%	%	%	% Difference
Singapore	1.5	0.0	2.9	0.0	0.0
Sweden	3.5	5.7	1.8	4.6	-1.1
United States	6.6	6.6	5.6	5.8	-0.8
Denmark	6.7	13.4	6.7	4.3	-9.1
Lithuania	7.2	10.8	6.9	4.3	-6.5
Türkiye	13.4	20.1	14.3	4.9	-15.2
OECD Average	23.9	27.8	22.4	18.3	-9.5
Ukraine	77.1	88.8	72.6	73.6	-15.2
Cambodia	77.3	78.4	78.4	69.3	-13.7
Morocco	77.6	87.4	80.4	58.1	-29.3
Mongolia	80.2	87.4	80.4	67.4	-15.6
Jamaica	82.1	79.7	90.1	68.1	-11.6

Source: MEB, 2023.

As shown in Table 5, the proportion of students in schools experiencing a lack of digital resources is approximately 24% on average for OECD countries, while this figure is around 13% for Türkiye. Additionally, the percentage of students in disadvantaged schools lacking digital resources is higher in both Türkiye and OECD countries.

The absence of both traditional and new technology-based digital resources appears to significantly impact educational quality and student achievement. In this context, Figure 6 below presents the difference in students' mathematical performance associated with a lack of educational materials.

Figure 6. Educational Material Deficiency and Students' Mathematics Performance

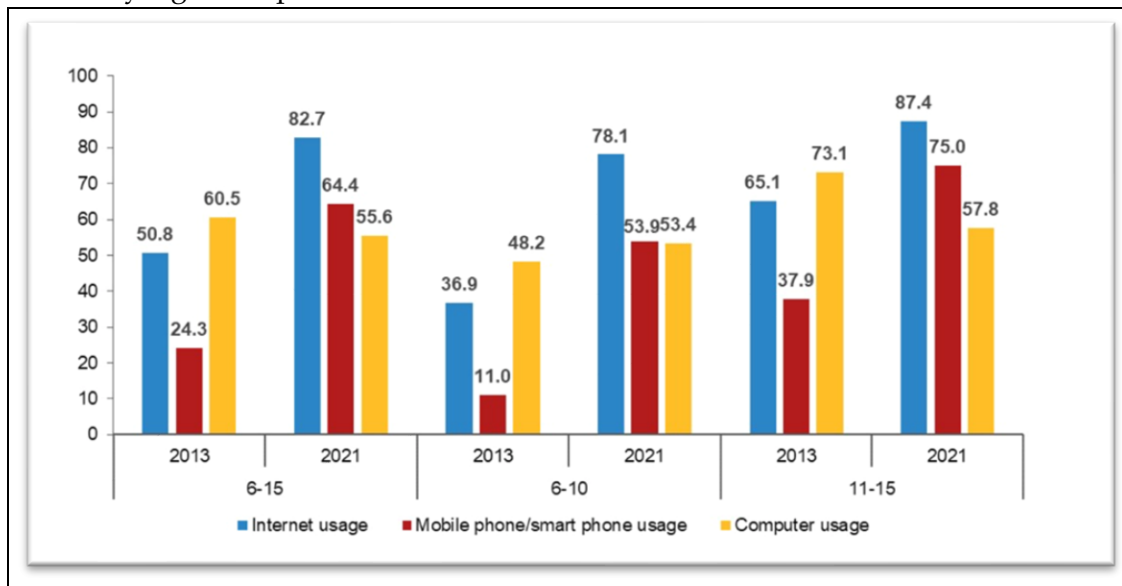


Source: MEB, 2023.

As shown in Figure 6, the lack of educational materials in Türkiye results in a decrease of 32 points in students' mathematics performance, while inadequate or low-quality educational materials lead to a reduction of 16 points. For OECD countries, this difference is 12 points for a lack of educational materials and 9 points for inadequate or low-quality educational materials. Consequently, it is evident that the lack of educational materials is associated with lower mathematics performance scores for students in both Türkiye and OECD countries.

These data from the PISA 2022 report provide insights into the deficiencies of traditional and digital resources in schools. The lack of digital resources in schools can offer an indication of the number of computers available per student. However, it is also important to consider whether children have access to computers at home, not just at school. Figure 7 illustrates the changes in internet, mobile phone/smartphone, and computer usage rates among children in Turkey by age group between 2013 and 2021.

Figure 7. Internet, Mobile Phone/Smartphone, and Computer Usage Rates Among Children by Age Group



Source: TÜİK, 2021.

As illustrated in Figure 7, there has been an increase in internet and mobile phone/smartphone usage among children across all age groups, while computer usage has decreased. Computer usage was 60.5% in 2013, but it declined to 55.6% by 2021. However, among children aged 6 to 15, internet usage increased from 50.8% to 82.7%. The rise in internet usage suggests that households possess computers; however, the increase in the use of mobile phones/smartphones indicates that students are choosing not to use computers. Nevertheless, the number of computers per student and internet usage emerge as topics that warrant closer examination.

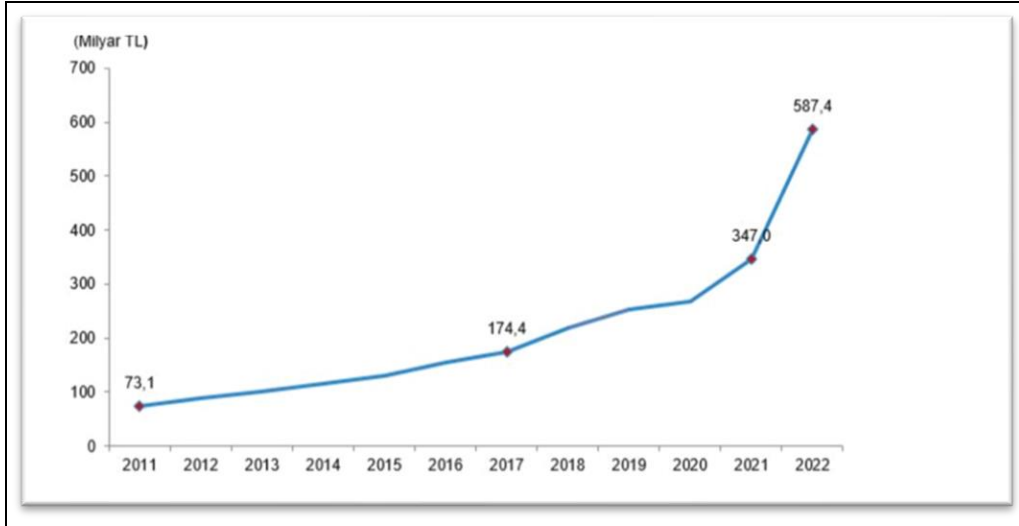
Educational expenditure per student

Hanushek and Kimko (2000) examined the impact of educational expenditures on quality, indicating that an increase in the budget per student could positively affect student success. Similarly, the study by Jackson and Johnson (2018) shows a positive correlation between higher budgets per student and levels of student achievement. However, it is important to note that the effects of the budget per student are complex.

Baker and Green (2016) emphasized that the impact of increases in the education budget interacts with other factors affecting student achievement, highlighting the necessity of concurrent policy changes for budget increases to be effective. In this context, the evaluation of the budget per student represents a significant area of research for assessing the effectiveness of educational expenditures and contributing to the establishment of more strategic policies.

Figure 8 below presents the total educational expenditures in Türkiye from 2011 to 2022.

Figure 8. Total educational expenditures, 2011-2022

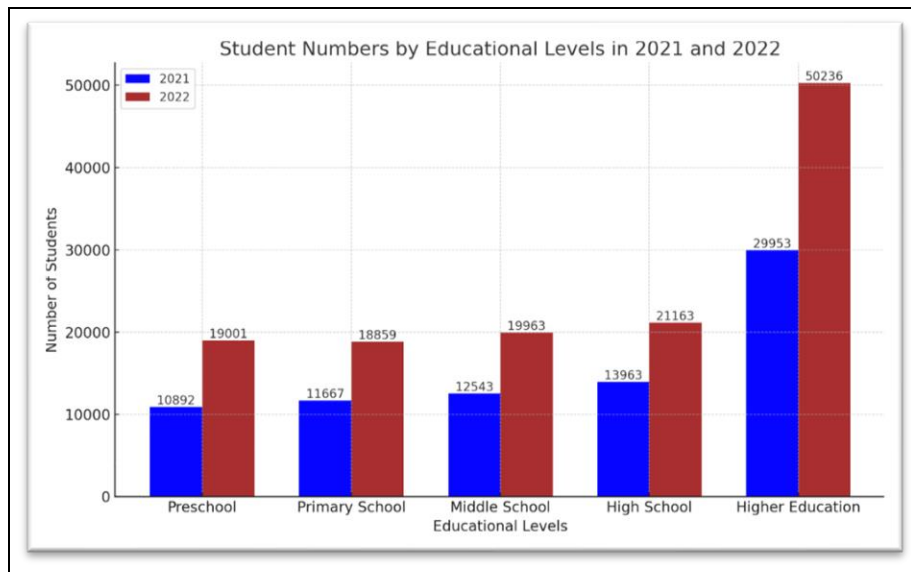


Source: TÜİK, 2023a.

As shown in Figure 8, educational expenditures increased by 69.3% in 2022 compared to 2021, reaching 587 billion 438 million Turkish Lira. In 2022, the education levels with the highest increase in expenditures compared to the previous year were preschool education at 113.8% and higher education at 74.1%.

Figure 9 below presents the amount spent per student in Türkiye.

Figure 9. Expenditure Per Student According to Education Levels (TL), 2021-2022



Source: TÜİK, 2023a.

As shown in Figure 9, the educational expenditure per student was 15,622 Turkish Lira in 2021, increasing to 25,143 Turkish Lira in 2022. When evaluated by education level, the highest expenditure per student in 2022 was in higher education, amounting to 50,236 Turkish Lira.

The data indicate a significant increase in educational expenditures in Türkiye, with a notable rise in spending per student. Particularly, the expenditures at the higher education level are observed to be higher compared to other education levels. This situation may suggest an increase in costs associated with higher education and changes in the financing of the education system.

Result and Discussion

This research examines fundamental topics such as the transition from upper secondary to higher education, school dropout rates, education budgets per student, teacher training processes, education management and evaluation, and family involvement in the Turkish education system.

The high rates of school dropout in Türkiye, ranking among the highest in European countries, raise concerns about the future of the country's children. The fact that children are leaving school without completing their education indicates problems related to access to education, equality of opportunity in education and various socio-cultural issues within the country. Among the primary factors contributing to school dropout are socio-economic factors (Kayacı & Boyacı, 2018), cultural dynamics (Küçüker, 2018) and family issues (Teyfur & Teyfur, 2023). Identifying and addressing these problematic areas is crucial for developing effective policies. In particular, establishing sustainable strategies to improve access to education due to socio-economic reasons will enhance the educational quality in the country and strengthen the education system.

Although the number of students enrolled in higher education is increasing each year, the noticeable decline in transition rates from upper secondary to higher education indicates that students are facing certain issues within the current system. It is believed that the underlying causes of this situation include economic reasons, concerns about employability, and the perception that the time spent in the education process delays entry into the workforce and earning money. Additionally, according to OECD data, Türkiye ranks among the top countries in the European Union for the rate of unemployed graduates with higher education diplomas (Çoban, 2017). Students who are anxious about becoming unemployed despite their education (Ünal, 2018) are more inclined to enter the workforce immediately after completing upper secondary education rather than pursuing higher education. This situation contributes to the development of an unskilled and poorly educated workforce, which is another area that needs to be addressed at the national level.

The fact that Türkiye's education budget per student lags behind the OECD average underscores the need for a more effective financial structure in our education system. Considering that there is a significant relationship between educational spending and academic success in countries with low educational expenditures, it can be stated that increasing the budget per student is a key factor in improving educational quality. This is because increasing the budget allocated to education facilitates funding for the professional development of teachers, diversifies educational materials such as computers

per student and enriches learning environments. Investment in these dynamics is critical, as it provides students with better quality educational opportunities and represents an important step forward.

The contribution of preschool education to a student's cognitive, affective and physical development is undeniable. Türkiye is increasingly improving its standing in OECD rankings in this area. However, there is a pressing need to enrich the educational materials for preschool education. It is well known that there are resource limitations in this regard (Bulut, 2018). Furthermore, equal opportunities for participation in preschool education have not been fully achieved. Expanding early childhood education to be accessible for all children in the country should be prioritized in educational policies.

When examining the historical development of the teacher training process, which is one of the cornerstones of our education system, it becomes evident that despite significant changes, efforts to modernize education continue. However, the lack of a standardized in-service training program for teachers may hinder their ability to stay current in a constantly changing educational environment. To sustain their professional development effectively, teachers require motivational tools both professionally and materially. In global practices, many reform initiatives aimed at maintaining teachers' professional development have recognized that material rewards and salary improvements are the most significant motivational tools for teachers (Firestone, 1994; Fuhrman & Clune, 1988; Johnson, 1986; Kelley & Finnigan, 2004; Schleicher, 2016; Umansky, 2005).

The lack of in-service training processes for administrative competencies following the appointment of school administrators indicates potential areas for development and the need for improvement in this area. Enhancing and strengthening the competencies of educational leaders will be a significant step toward improving the quality of the education system (Normore, 2004). The management of schools, which process the invaluable human resources, should be carried out by competent individuals equipped with the necessary skills. Therefore, incorporating school principals into a program designed to equip them with administrative skills, developed by experts in the field, will make a significant contribution to the development of schools and, consequently, to the quality of education.

The positive effects of active family involvement in the educational process on student achievement have been frequently emphasized in the literature. Furthermore, it is known that families' active participation in their children's education positively influences their learning motivation and enhances their academic skills (Epstein, 2001). This process not only positively affects students' academic skills and success but also contributes to their emotional development (Desforjes & Abouchaar, 2003). Despite the acknowledged qualitative contribution of family involvement to students and education, there is evidence that family participation is not sufficiently prioritized (Harris & Goodall, 2008; Smith et al., 2010; Walton et al., 2015). Smith and colleagues (2010) found that families with lower socioeconomic status participated less in school events and meetings compared to families with higher socioeconomic status. Similarly, Walton et al. (2015) identified that low-income families had lower participation rates in parent-teacher meetings, which negatively affected their children's academic performance, resulting in lower achievement levels for these children. Therefore, special efforts should be made to

increase the participation of families with low socioeconomic status in the educational process. Awareness campaigns, seminars, and information disseminated through communication channels can encourage families to become more involved in their children's education.

Suggestions

Effective policies can be developed to increase the per-student education budget in Türkiye, aiming to align the education system with global standards. This approach will not only address issues related to school dropout but also facilitate improvements in the transition to higher education. To prevent school dropout in Türkiye, additional educational contributions could be made to the incomes of families with low socioeconomic status, alongside providing support for educational materials. Furthermore, awareness programs can be organized for families of children who drop out due to familial issues, encouraging their participation in education and supporting their children. Additionally, by developing different educational models, sustainable school attendance can be achieved for these children through flexible education, online education and various alternative educational methods.

To improve the transition to higher education, financial support should also be provided to students, and various incentive programs, such as monetary rewards for academic success, can be organized. Additionally, guidance units, known as career or vocational development centers, can be established to inform students about how they will be employed upon graduation or how they can continue their careers or academic pursuits.

Additionally, regular and standardized in-service training programs should be established for teachers to support their professional development and ensure that they possess up-to-date knowledge and skills. Financial incentive systems can be created for this purpose. Rather than perceiving that each developmental process will impose an additional educational burden, a system can be established where teachers view it as "greater career opportunities leading to more financial rewards and access to a quality life." Furthermore, in-service training programs focused on the professional development of school administrators can be developed to strengthen their leadership skills. In Türkiye, master's and doctoral programs in management are academically pursued; therefore, school management can be differentiated as specialized master's and doctoral programs, allowing school administrators to participate in these training courses.

To increase parental involvement in the educational process, regular family involvement programs can be organized in schools, and awareness campaigns can be conducted to encourage families to engage more effectively in the educational process. In addition, student-parent workshops can be organized to establish a common educational language among students, parents and teachers. Ultimately, the continuous evaluation of our education system, its comparison with international standards, and the implementation of effective policy changes in this context will be an important step toward improving the quality of Türkiye's education system.

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