

## Exploration of Quality Education Initiatives under Sustainable Development Goal 4 in Türkiye

### Sürdürülebilir Kalkınma Hedefi 4 Kapsamında Türkiye'de Nitelikli Eğitim Girişimlerinin İncelenmesi

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**ABSTRACT:** This study investigates teachers' and school administrators' perspectives on the Ministry of National Education's (MoNE) implementation of Sustainable Development Goal 4 (Quality Education). Using a sequential explanatory mixed-methods approach, data were collected from 1,066 participants through an 18-item survey and 18 semi-structured interviews across 81 cities. This research provides empirical evidence of how Türkiye, as an upper-middle-income country, aligns national policies with global goals while addressing local challenges. Quantitative results reveal stakeholder agreement with MoNE's efforts in several areas, with the strongest support for adult literacy programs, preschool education access, teacher development, lifelong learning, and gender equality. However, significant concerns emerged regarding educational infrastructure quality and sustainable development awareness, which received neutral ratings, indicating stakeholder uncertainty. Analysis identified several key implementation challenges: inadequate learning infrastructure, curriculum adaptation needs, limited inclusivity, vocational-industry misalignment, regional disparities, and insufficient sustainability awareness. Despite large investments by MoNE, participants emphasized persistent educational disparities across regions in Türkiye, theoretically explained through the "Matthew effect", where advantages tend to accumulate for those already advantaged. Policy recommendations include targeted infrastructure investment, comprehensive teacher development, meaningful curriculum updates, and enhanced industry-education partnerships.

**Keywords:** Education policies, quality education, sustainable development goals, Türkiye, teachers.

**ÖZ:** Bu çalışma, öğretmenlerin ve okul yöneticilerinin Millî Eğitim Bakanlığı'nın Sürdürülebilir Kalkınma Hedefi 4 kapsamındaki uygulamalarına ilişkin bakış açılarını incelemektedir. Sıralı açıklayıcı karma yöntem yaklaşımı kullanılarak 18 maddelik bir anket yoluyla 81 ilden 1.066 katılımcıdan veri toplanmış ve 18 yarı yapılandırılmış görüşme gerçekleştirilmiştir. Bu araştırma, Türkiye'nin bir üst-orta gelirli ülke olarak yerel zorlukları ele alırken ulusal politikalarını küresel hedeflerle nasıl uyumlandırıdığına dair ampirik kanıtlar sunmaktadır. Nicel bulgular, katılımcıların Bakanlığın en çok yetişkin okuryazarlık programları, okul öncesi eğitime erişim, öğretmen gelişimi, yaşam boyu öğrenme ve toplumsal cinsiyet eşitliği alanlarındaki girişimlerini gözlemlediğini göstermektedir. Ancak, eğitim altyapısının niteliği ve sürdürülebilir kalkınma farkındalığı konularında katılımcılar arasında önemli kaygılar ortaya çıkmıştır. Analiz, başlıca şu uygulama zorluklarını tespit etmiştir: yetersiz öğrenme altyapısı, müfredat uyarlama ihtiyacı, sınırlı kapsayıcılık, mesleki eğitim-endüstri uyumsuzluğu, bölgesel eşitsizlikler ve yetersiz sürdürülebilirlik farkındalığı. Bakanlığın yaptığı yatırımlara rağmen katılımcılar Türkiye'de bölgeler arasında devam eden eğitim eşitsizliklerine dikkat çekmiştir. Bu durum, mevcut avantajlara sahip olanların avantajlarının daha da artma eğiliminde olduğu "Matthew etkisi" ile açıklanmıştır. Politika önerileri arasında; hedefli altyapı yatırımları, kapsamlı öğretmen gelişimi, gerekli müfredat güncellemeleri ve güçlendirilmiş sanayi-eğitim iş birlikleri yer almaktadır.

**Anahtar kelimeler:** Eğitim politikaları, nitelikli eğitim, sürdürülebilir kalkınma amaçları, Türkiye, öğretmenler.

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Sustainable development is a continuous endeavour to improve Earth's habitability and viability by balancing economic growth, social inclusion, and environmental protection. This concept, which emerged from the Brundtland Report (UN, 1987), aims to fulfil the needs of the present without compromising the ability of future generations to meet their own needs. Following this seminal report, significant international milestones have further shaped the sustainable development agenda, including the 1992 Earth Summit in Rio de Janeiro, the 2002 World Summit on Sustainable Development in Johannesburg, the 2012 Rio+20 Conference, and the 2015 UN Sustainable Development Summit (Bolton & Landells, 2020). At the heart of these global initiatives are the 17 Sustainable Development Goals (SDGs), which address the predominant challenges facing populations worldwide (UN, 2015). Despite the progress made over recent decades, it is evident that substantial efforts are still required across various sectors to ensure continued advancement in sustainable development (Lamichane et al., 2020; Wackernagel et al., 2017). Current initiatives demonstrate a strong commitment to global dialogue and collaborative efforts in addressing these challenges, providing a rich context for comparative and international research.

The United Nations remains steadfast in its commitment to facilitating the attainment of these goals by 2030, specifically focusing on education. The 2030 Agenda for Sustainable Development identifies "Quality Education" as one of its key goals, aiming to *"ensure inclusive and equitable quality education and promote lifelong learning opportunities for all"* by 2030 (UN, 2015, p. 14). The Quality Education goal (SDG 4) comprises ten sub-goals: free, equitable, and quality primary and secondary education; access to quality early childhood education; provision of necessary technical and vocational training; relevant skills for decent work; eradication of gender and educational disparities; achievement of literacy and numeracy; education for sustainable development, peace, and global citizenship; construction of inclusive learning environments; expansion of scholarship opportunities globally and provision of qualified teachers (UN, 2015). This goal also serves as a cornerstone for realizing other SDGs within the 2030 Agenda (Webb et al., 2017). Achieving quality education is crucial for empowering individuals with the knowledge, skills, and competencies needed to lead fulfilling lives, engage as global citizens, find decent employment, and contribute positively to society (Wu, 2017; Ng, 2015).

### **Quality Education Goal (SDG 4) in Türkiye**

Türkiye has dedicated substantial effort to align its national education plans and sustainable education policies within the leadership of MoNE and various higher education institutions (Yılmaz Fındık & Erçetin, 2023). Central to these efforts and national priorities is the expansion of access to pre-primary education, the provision of opportunities and pathways for technical and vocational training, the incorporation of human rights and citizenship concepts into the curricula, and the provision of adult literacy programs, as outlined in educational plans and regulations (MoNE, 2019; 2024). These initiatives reflect Türkiye's keen interest in its development and alignment with the global trends towards a more qualified approach to education, from early childhood to adult education.

Educational initiatives in Türkiye have been specifically designed to support the pursuit of high-quality, inclusive, and equitable education for the growing student

population, which has increased from around 7 million in 1972-73 to 19 million in the current education system. Notably, developmental strategies outlined by the MoNE have been in place for a long time, even before the introduction of the SDGs by the UN. Prominent endeavours within this framework encompass initiatives such as the "Eco-Schools and Forest Schools Project," "Education for All," "Let Girls Learn," "100% Support for Education," and the "Green Box Environmental Education Project" (Kaya et al., 2010). Beyond these comprehensive programs, MoNE initiated various projects specifically to support individuals who cannot access education or drop out early. Projects such as the "Increasing Attendance Rates in Primary Education Institutions Project," the "Free Textbook Project," and the "From Field to School Project" stand out as prominent initiatives in this regard (Strategy and Budget Presidency, 2019). These and other targeted interventions offer valuable insights into Türkiye's approach to addressing educational progress, as evidenced by middle school enrolment rates increasing from around 38% in 1972-73 to 91.21% in the 2022-23 academic year (MoNE, 2023a).

Building upon these foundational efforts, MoNE has undertaken more recent actions to advance SDGs and enhance education quality. It has integrated themes such as sustainability, global citizenship, and critical thinking into the national curriculum (Ayar & Özalp, 2021; Ergün et al., 2023). Simultaneously, faculties of education have implemented teacher training programs to enhance educators' skills for sustainable development (Biçer & Bulut, 2023). MoNE has also prioritized infrastructure development in all schools, ensuring safe and conducive learning environments, constructing new schools, renovating existing facilities, and providing modern educational resources. Recently, it has promoted innovative classes through digital transformation (Kasap, 2024). Furthermore, MoNE has actively promoted inclusive education practices, ensuring equal access to quality education for all students, including those with disabilities, migrants, and marginalized communities (Sarı et al., 2020; Strategy and Budget Presidency, 2019). Additionally, it has focused on enhancing vocational education and training programs, equipping students with workforce-relevant skills, collaborating with industry partners, and providing practical training opportunities (MoNE, 2021; MoNE, 2022a).

Despite these extensive initiatives over the years, the OECD (2022) country report indicates that Türkiye is still performing poorly in its human capital targets, highlighting the need to address certain aspects of SDG 4 immediately. For example, while the number of children enrolled in early childhood education and care is increasing, it remains inadequate. Only 63% of 15-year-olds met the PISA level 2 standard in mathematics in 2018, with significant disparities influenced by socioeconomic background, gender, migration status, and location. Moreover, nearly half of the working-age population lacks basic numeracy and literacy skills, and the participation rate in lifelong learning was just 21% in 2016. Additionally, Türkiye falls behind OECD countries in ICT skills among young people and adults. Compounding these challenges, public health risk factors, including malnutrition and tobacco consumption, further exacerbate these educational shortcomings. Therefore, comprehensive policy interventions are required to improve access, quality, and inclusivity in education, alongside efforts to mitigate health risks. The 2022 PISA report reinforces these concerns, demonstrating that students in Türkiye still score below the

OECD average in mathematics, reading and science (OECD, 2023). Corroborating these international assessments, national studies also point to inherent problems in Türkiye related to the quality of education, ranging from unequal access to relevant curriculum and teacher training to infrastructure issues (Basdemir, 2012; Öztekin Bayir & Tekel, 2021; TEDMEM, 2023). When coupled with the economic situation, these problems can further escalate educational quality issues, which could potentially trap Türkiye in the middle-income trap at the international level.

The OECD (2022) SDG Distance Report indicates that Türkiye faces significant challenges, particularly in reducing disparities in educational outcomes across socioeconomic groups and regions. The United Nations Development Programme has noted that while Türkiye has made substantial strides in increasing enrolment rates at all educational levels, ensuring equitable access to quality education remains a persistent challenge (UNDP, 2024). Furthermore, the UNESCO Global Education Monitoring Report highlighted Türkiye's efforts to expand early childhood education and adult literacy programs, while calling for greater systematic attention to learning outcomes and inclusive education practices (UNESCO, 2021). These international assessments provide crucial context for understanding both the achievements and ongoing challenges in Türkiye's pursuit of SDG 4 targets.

### **Purpose of the Study**

School leaders' and teachers' experiences, perspectives and feedback are crucial for assessing the success of educational policies and reforms pursued nationally and internationally. As key school stakeholders, they can provide vital insights into the effectiveness of initiatives aimed at achieving SDG 4 as implemented by educational authorities. Given this critical need for stakeholder perspectives, the current study examines Turkish school stakeholders' perceptions of MoNE's initiatives and progress toward the quality education goal as outlined in the SDGs. Ultimately, this study aims to provide a comprehensive descriptive analysis of Türkiye's educational system within the SDG 4 framework, generating empirical evidence from stakeholder perspectives that can inform both national policy development and serve as a reference case for international comparative education research.

While a substantial body of research has examined various aspects of Türkiye's education system and its alignment with international standards including SDG 4 goals, several gaps remain that the current study seeks to address. First, existing studies on SDG 4 in Türkiye have predominantly focused on policy analysis and document review rather than on empirical investigation of stakeholder perspectives. For example, Yılmaz Fındık and Erçetin (2023) analysed university strategies for SDG integration but focused exclusively on higher education institutional documents. Second, studies that have collected teacher perspectives on education quality in Türkiye have generally not framed their findings within the SDG 4 framework. For instance, Öztekin Bayir and Tekel (2021) investigated pre-service teachers' views on challenges in the Turkish education system but did not specifically examine perceptions of SDG-aligned initiatives. Basdemir (2012) examined structural problems in Turkish education but relied on secondary data rather than primary stakeholder accounts. Third, existing mixed-methods research on Turkish education has typically employed smaller sample sizes (usually fewer than 500 participants) and has not achieved the national scope

spanning all 81 provinces. The current study's sample of 1,066 participants across all 81 Turkish provinces represents one of the largest and most geographically comprehensive stakeholder surveys on SDG 4 implementation to date. Fourth, previous research has not systematically linked quantitative survey findings with qualitative interview data to explain why stakeholders express uncertainty or disagreement about specific SDG 4 indicators. The majority of prior studies have employed either quantitative or qualitative methods in isolation, limiting explanatory depth.

The current study addresses these gaps by: (a) collecting empirical data directly from teachers and school administrators as key implementers of SDG 4 policies, (b) framing all survey items explicitly from the UN SDG 4 targets, (c) employing a sequential explanatory mixed-methods design with a large, nationally distributed sample, and (d) using qualitative data to explain the factors underlying quantitative patterns, particularly for the lowest-rated items.

In line with the purpose of the study and the gaps identified in the literature, the present study investigates the following main problem: To what extent do educational stakeholders perceive current MoNE policies as effectively advancing equitable and quality education for all in alignment with SDG 4 targets?

To address this overarching question, the following sub-problems were formulated:

1. What are the patterns of teachers' and school administrators' agreement or disagreement with the 18 survey items operationalizing each SDG 4 target within the Turkish context?
2. What explanations do participants provide for their neutral or negative ratings on specific SDG 4 indicators, particularly those receiving the lowest mean scores?
3. How do qualitative findings explain and contextualize the quantitative patterns, especially with regard to educational infrastructure, curriculum relevance, and awareness of sustainable development?
4. What regional, school-type, or demographic factors do participants identify as either barriers to or facilitators of SDG 4 implementation in Türkiye?

## Method

### Research Design

This study employs a mixed-methods approach with a sequential explanatory design, combining qualitative and quantitative research methods to explore teachers' perceptions of quality education within SDG 4. The sequential explanatory design combines quantitative and qualitative methods in two consecutive phases within one study (Wipulanusat et al., 2020). This methodology involves conducting a quantitative method, such as a questionnaire survey in the first stage, followed by a qualitative approach in the second stage. The findings from both phases are then examined and combined to reach comprehensive conclusions. This design allows for a deeper understanding of the research topic by integrating different methods and perspectives. Specifically, the researchers in this study sought to understand why some items received low ratings and were not agreed upon by the majority of participants.

The quantitative component is based on a cross-sectional survey. Aggarwal and Ranganathan (2019) describe this approach as a 'snapshot' of the frequency and characteristics of a topic among a specific population at a certain point in time. A sample item from the survey is, *'MoNE carries out adequate activities to raise awareness on sustainable development.'* While the survey presents a quantitative perspective, the qualitative aspect of the study offers an in-depth exploration of various topics, particularly focusing on the levels of agreement or disagreement among participants about survey items. Both the quantitative and qualitative data were collected through online channels and forms.

### **Data Collection Tools**

The study employed an 18-item survey to explore teachers' and school administrators' perceptions of the quality education initiatives undertaken by MoNE, aligned with SDG 4. The survey items were developed through a systematic process of indicator mapping. Specifically, the researchers directly consulted the official United Nations SDG Goal 4 targets and indicators as published on the UN Türkiye website (<https://turkiye.un.org/en/sdgs/4>). Each of the ten SDG 4 targets was deconstructed into multiple statement-based items that reflected how each target would manifest in the Turkish national education context. This process initially generated 60 items. These 60 items then underwent a two-stage validation process. In the first stage, two panels were convened: Panel A consisted of five academics specializing in educational policy, SDG research, and measurement and evaluation; Panel B consisted of six expert teachers from different educational institutions (pre-primary, primary, middle, and high schools) who had active experience with SDG-related projects. Each panel independently reviewed the 60 items for: (a) relevance to the corresponding SDG 4 target, (b) clarity and unambiguity of wording, (c) appropriateness for the Turkish educational context, and (d) absence of double-barreled or leading phrasing. Items were retained only if they achieved at least 80% agreement across both panels on all four criteria. This process reduced the item pool to 24 items. In the second stage, the 24 items were pilot-tested with a convenience sample of 45 teachers (not included in the main study sample) to assess face validity and comprehension. Based on pilot participant feedback and further expert review, six items were either merged with conceptually similar items or eliminated due to redundancy or ambiguity. The final 18 items were thus established. The items on the survey were rated on a 5-point Likert scale, where 1 signifies 'Strongly Disagree' and 5 denotes 'Strongly Agree.'

The survey in its final format assesses participants' views on various dimensions pertinent to delivering quality education as outlined in SDG 4. The survey encompasses inclusive and equitable education access, skill development, opportunities for lifelong learning, quality educational infrastructure, teacher training, human rights education, and the incorporation of sustainable development principles, among other aspects. The teachers' and school administrators' responses to these items formed the foundation for subsequent qualitative data collection.

For the qualitative component, the researchers conducted semi-structured interviews focusing specifically on the items that had received the lowest ratings in the survey, following the sequential explanatory design principle that qualitative data collection should be informed by quantitative findings (Creswell & Plano Clark, 2017).

Three survey items emerged with the lowest mean scores: Item 14 ( $M = 2.99$ , educational facilities/environments), Item 4 ( $M = 3.12$ , age-appropriate knowledge and skills), and Item 18 ( $M = 3.13$ , sustainable development awareness). Based on these three low-rated items, the researchers developed an initial pool of 14 open-ended questions designed to probe the reasons underlying participants' neutral or negative ratings. This pool was refined through a three-stage process. First, three experts (two educational policy academics and one measurement specialist) reviewed the questions against criteria of relevance, explanatory potential, clarity, and neutrality. Questions were retained only when at least two experts rated them as adequate on all criteria, reducing the pool to 8 questions. Second, a peer debriefing session with three doctoral students not involved in the study provided feedback on question clarity and sequencing, leading to the merging of two questions and elimination of one redundant question. Third, the final 5 questions were reviewed by two of the original expert panellists for final approval. The final interview questions were thus directly anchored to the quantitative findings, ensuring that the qualitative phase specifically addressed the areas of greatest stakeholder concern. The questions were as follows:

1. 'In the survey, the participants expressed uncertainty about whether MoNE provides proper and quality educational facilities/environments for all students. Could you describe the facilities and learning environment at your school and region? What specific improvements are needed?'
2. 'Participants also expressed uncertainty about whether students are acquiring knowledge and skills appropriate to contemporary needs. In your experience, what skills are students lacking? What factors contribute to this?'
3. 'The survey indicated that participants were uncertain about MoNE's activities to raise awareness of sustainable development. What sustainable development awareness activities, if any, have you observed in your school or district? How adequate are these efforts?'
4. 'What do you see as the main barriers to MoNE achieving its SDG 4 targets in your school or region?'
5. 'If you could recommend three specific changes to improve MoNE's progress toward quality education for all, what would they be?'

### Sample

The target population for this study consisted of all public-school teachers and school administrators (principals and deputy principals) employed in the 81 provinces of Türkiye during the 2023-2024 academic year. According to MoNE (2023b) statistics, the total population of teachers and administrators in public schools is approximately 1,200,000 individuals. For the quantitative component, the sample of 1,066 substantially exceeds the minimum sample size of 384 recommended for populations exceeding one million in survey research (Krejcie & Morgan, 1970), providing adequate statistical power for descriptive and comparative analyses. For the qualitative component, the sample of 18 participants exceeds the minimum recommended for thematic saturation in interview studies (Guest et al., 2006). Therefore, while the sample is not perfectly representative of the large national population, it is adequate for the exploratory

purposes of this study and provides valuable insights into stakeholder perceptions across diverse contexts.

Specifically, the researchers attempted to collect data from the eTwinning platform and associated social media groups that are home to active online teaching and learning projects supervised by MoNE's National Support Organization (Döger, 2023). eTwinning serves as a community for school staff and an online platform where teachers, school leaders, and pupils across Europe and participating countries collaborate on projects, engage in online discussions, and develop their professional skills (Döger, 2024).

All ethical principles were followed (approval no: 2022/222 and date 16.12.2022); no identifying data was requested, and participants were invited by email on a voluntary basis and informed they could leave the survey or interview at any moment without consequence. The characteristics of the sample are shown in Table 1 below:

Table 1

*Demographic Characteristics of Teachers in the Quantitative Study (n=1066)*

| Variables    | Groups                             | Quantitative |      | Qualitative |      |
|--------------|------------------------------------|--------------|------|-------------|------|
|              |                                    | N            | %    | N           | (%)  |
| Gender       | Woman                              | 892          | 83.7 | 11          | 61.1 |
|              | Man                                | 174          | 16.3 | 7           | 38.9 |
| Role         | Teacher                            | 979          | 91.8 | 17          | 94.4 |
|              | Principal or Deputy                | 87           | 8.2  | 1           | 5.6  |
| Tenure       | 0-10 years                         | 163          | 15.3 | 5           | 27.8 |
|              | 11-20 years                        | 499          | 46.8 | 7           | 38.9 |
|              | 21 and more                        | 404          | 37.9 | 6           | 33.3 |
| School Type  | Pre-primary                        | 148          | 13.9 | 1           | 5.6  |
|              | Primary                            | 448          | 42.0 | 2           | 11.1 |
|              | Middle School                      | 261          | 24.5 | 9           | 50.0 |
|              | High School                        | 209          | 19.6 | 6           | 33.3 |
| Project Exp. | Done - Erasmus, eTwinning Projects | 845          | 79.3 | 13          | 72.2 |
|              | None                               | 219          | 20.5 | 5           | 27.8 |
| City         | Adana                              | 56           | 5.3  | 1           | 5.6  |
|              | Ankara                             | 128          | 12.0 | 0           | 0.0  |
|              | Bursa                              | 29           | 2.7  | 1           | 5.6  |
|              | İstanbul                           | 137          | 12.9 | 1           | 5.6  |
|              | İzmir                              | 31           | 2.9  | 1           | 5.6  |
|              | Şanlıurfa                          | 22           | 2.1  | 1           | 5.6  |

|              |     |      |    |      |
|--------------|-----|------|----|------|
| Other Cities | 663 | 62.1 | 13 | 72.2 |
|--------------|-----|------|----|------|

Table 1 provides a clear picture of the sample from Turkish schools. To summarize key demographic characteristics: the majority of participants were female, representing 83.7% of the total sample (892 participants), while 16.3% were male (174 participants). This gender distribution was similarly reflected in the qualitative section, where out of 18 participants, 11 were female and 7 were male. Regarding project experience, 79.3% (845 participants) were involved in different project types related to school education. Consistent with the quantitative sample, in the qualitative data, 72.2% had project experience (13 participants), and 27.8% did not (5 participants). Given that there are 81 cities in Türkiye, only 6 metropolitan cities are shown in Table 1. To maintain readability and focus on major urban centres, the researchers included six representative metropolitan cities (Adana, Ankara, İstanbul, İzmir, Bursa, and Şanlıurfa) in the demographic breakdown presented in Table 1.

The qualitative sample (n=18) was purposively selected from the quantitative survey respondents who indicated willingness to participate in follow-up interviews. Purposive sampling criteria were established to ensure maximum variation across key demographic and contextual variables (Patton, 2015). Selection criteria included: (a) representation across all seven geographical regions of Türkiye, (b) diversity in school type (pre-primary, primary, middle, high school), (c) variation in professional experience (3-30 years), (d) balance of gender (though final sample was 61.1% female, 38.9% male), and (e) inclusion of both teachers (94.4%) and administrators (5.6%). The final sample of 18 was determined by thematic saturation, the point at which additional interviews yielded no new codes or themes, which occurred after the 15th interview (Guest et al., 2006).

In the qualitative research, purposive sampling was selected over random sampling for the qualitative component because the goal was not statistical generalizability but rather information-rich cases that could provide in-depth understanding of the phenomena underlying low survey ratings (Patton, 2015). This approach aligns with the sequential explanatory design's logic, where qualitative participants are intentionally selected to explain quantitative results rather than to represent the population statistically."

### Data Analysis

This study's first data collection tool was an 18-item survey. Quantitative data were analysed using descriptive statistics, including means and frequency distributions. The survey employed a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), with the midpoint of 3 representing a Neutral/Uncertain response. To facilitate systematic interpretation of mean scores, interval ranges were established following the equal-interval formula proposed by Pimentel (2010), whereby the scale range is divided by the number of categories:  $(5 - 1) / 5 = 0.80$ . This yielded the following interpretive thresholds: 1.00–1.80 = Strongly Disagree, 1.81–2.60 = Disagree, 2.61–3.40 = Neutral/Uncertain, 3.41–4.20 = Agree, and 4.21–5.00 = Strongly Agree, as summarized in Table 2. This equal-interval approach assumes approximately equal psychological distances between adjacent scale points, a standard and widely accepted

assumption in Likert-scale analysis (Carifio & Perla, 2007; Norman, 2010), and was selected for its transparency, simplicity, and widespread application in educational survey research.

Table 2

*The Intervals for the 5-Point Likert Scale*

| Likert-Scale Description | Likert-Scale | Likert Scale interval |
|--------------------------|--------------|-----------------------|
| Strongly disagree        | 1            | 1.00- 1.80            |
| Disagree                 | 2            | 1.81- 2.60            |
| Neutral/Uncertain        | 3            | 2.61- 3.40            |
| Agree                    | 4            | 3.41- 4.20            |
| Strongly agree           | 5            | 4.21- 5.00            |

The results of the Likert-type survey, as shown in Table 2, assigned a range of values corresponding to each descriptive label and numerical values. The data analysis for the semi-structured interviews, conducted after the completion of surveys in the first phase, was subjected to thematic analysis as defined by Braun and Clarke (2012). The analysis included detailed and comparative readings of the written data to develop codes, categories, and themes. The thematic analysis was guided by an interpretivist epistemological framework (Merriam & Tisdell, 2016), which assumes that reality is socially constructed through participants' subjective experiences and that the goal of qualitative research is to understand how individuals make meaning of their contexts. Within this framework, the analysis focused on capturing the diversity and nuance of participants' perspectives rather than seeking a single objective truth about MoNE's SDG 4 implementation. Two researchers independently coded the 18 interview transcripts, achieving an inter-coder reliability. Disagreements were resolved through discussion. The analysis produced a hierarchical structure of 18 codes, organized into 7 categories, which were then grouped into 7 themes. The table 3 presents this structure.

Table 3

*Thematic Analysis Coding Structure*

| Theme                                | Category             | Codes (number of participants contributing)                                                                                  |
|--------------------------------------|----------------------|------------------------------------------------------------------------------------------------------------------------------|
| 1. Adherence to SDGs and SDG 4       | Policy awareness     | SDG awareness among teachers (12), Knowledge of SDG 4 targets (10)                                                           |
|                                      | Implementation gaps  | Gap between policy and practice (14), PISA performance concerns (8), Resource distribution problems (11)                     |
| 2. Inclusive and Equitable Education | Disability inclusion | Insufficient special education teachers (9), Lack of materials for disabled students (8), Inaccessible school facilities (7) |

| Theme                                                | Category                  | Codes (number of participants contributing)                                                                           |
|------------------------------------------------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------|
| 3. Curriculum and Pedagogy                           | Migrant/refugee education | Syrian students' challenges (11), PIKTES project limitations (6), Language barriers (9)                               |
|                                                      | Socioeconomic barriers    | Economic disadvantage affecting learning (10), Dropout risk for poor students (8), Nutrition concerns (7)             |
|                                                      | 21st century skills       | Lack of critical thinking focus (14), Insufficient problem-solving emphasis (12), STEM education gaps (9)             |
|                                                      | Teaching methods          | Traditional teacher-centered approaches (13), Limited project-based learning (10), Technology integration uneven (11) |
| 4. Vocational and Technical Education                | Teacher capacity          | Insufficient in-service training (12), Teacher motivation problems (9), Need for supervision/accountability (8)       |
|                                                      | Industry alignment        | Disconnect between education and labor market (10), Intermediate staff shortage (7)                                   |
|                                                      | VET enrollment            | Declining vocational high school enrollment (8), Stigma against VET (6)                                               |
| 5. Regional Disparities and Contextual Factors       | East-West divide          | Better resources in western regions (15), Historical disparities (11)                                                 |
|                                                      | Urban-rural differences   | Rural school disadvantages (13), Transportation barriers (7)                                                          |
|                                                      | Economic factors          | Funding differences by region (14), Private vs. public school divide (12)                                             |
| 6. School Setting and Classes                        | Physical infrastructure   | Old buildings (14), Crowded classrooms (13), Insufficient cleaning/security staff (10)                                |
|                                                      | Equipment and technology  | Lack of laboratory equipment (12), Uneven smart board distribution (11), Inadequate materials for arts/sports (9)     |
| 7. Sustainable Development Awareness and Initiatives | Awareness levels          | Low SDG awareness among teachers (13), SDG knowledge limited to project participants (11)                             |
|                                                      | Implementation            | Project-based SDG activities (eTwinning, Erasmus) (12), Curriculum integration of sustainability (9), Need            |

| Theme | Category | Codes (number of participants contributing) |
|-------|----------|---------------------------------------------|
|       |          | for systematic approach (14)                |

Responses from 18 participants (17 teachers and one deputy principal) were collected online from different cities, totalling 18 pages. To maintain anonymity and address ethical concerns, participants were not individually identified and were referred to generically as "one teacher said" or "a participant said" without providing any additional identifying details. Furthermore, the participants' quotes were grammatically refined using AI editing tools in collaboration with researchers to help readers better understand the participants' actual ideas or intentions. To ensure accuracy, the researchers verified the transcribed text and the adapted quotes to identify any meaning deviation. To establish reliability and trustworthiness, the data in the study underwent expert review, peer debriefing, and member checking procedures.

### Ethical Approval

This research was approved as ethically suitable by the Harran University Social and Human Sciences Ethics Committee, with its decision dated 16.12.2022 and numbered 2022/222.

### Results

All results reported in this section reflect the perceptions of participating teachers and school administrators and should not be interpreted as objective assessments of MoNE's actual performance. To assess the perceptions of teachers and school administrators on quality education and related SDG initiatives, participants responded to survey items as presented in Table 4, designed to evaluate whether MoNE is committed to fostering a holistic educational approach that empowers quality education for everyone in the country.

Table 4

#### *Opinions of Participants on Quality Education Indicators in Türkiye*

| The Ministry of National Education (MoNE) in Türkiye                                                                                 | N    | Mean | Std. Err. | Std. Dev. |
|--------------------------------------------------------------------------------------------------------------------------------------|------|------|-----------|-----------|
| <i>Highest-rated items</i>                                                                                                           |      |      |           |           |
| 10. carries out activities for adults to acquire literacy (e.g., reading or basic mathematical skills) through non-formal education. | 1066 | 3.64 | .02914    | .95154    |
| 5. carries out activities to increase access to quality preschool education.                                                         | 1066 | 3.60 | .03092    | 1.00968   |
| 2. provides lifelong learning opportunities for all.                                                                                 | 1066 | 3.59 | .03129    | 1.02176   |
| <i>Lowest-rated items</i>                                                                                                            |      |      |           |           |
| 14. provides all students with proper and quality educational facilities/environments.                                               | 1066 | 2.99 | .03554    | 1.16038   |

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|                                                                                                                |      |      |        |         |
|----------------------------------------------------------------------------------------------------------------|------|------|--------|---------|
| 4. ensures that all students acquire knowledge, skills, and competencies appropriate to the needs of this age. | 1066 | 3.12 | .03450 | 1.12652 |
| 18. carries out adequate activities to raise awareness on sustainable development.                             | 1066 | 3.13 | .03246 | 1.05975 |

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Table 4 presents the three highest-rated and three lowest-rated items from the 18-item survey, with mean scores ranging from 2.99 to 3.64. The pattern of participant responses reveals a nuanced picture of stakeholders' perceptions regarding Türkiye's progress toward SDG 4. According to participants' views, MoNE demonstrates relative strength in several areas (items 10, 5, 2), while participants identified significant concerns in other domains (items 14, 4, 18). These perceptions indicate that from the stakeholders' perspective, certain aspects of SDG 4 implementation require continued attention and improvement to align with international education standards.

While the survey contained 18 items assessing various dimensions of SDG 4 implementation, Table 4 reports only the three highest-rated and three lowest-rated items to enhance readability and focus attention on areas of strongest stakeholder agreement and greatest concern. This selective reporting approach is consistent with best practices in mixed-methods research where quantitative findings are used to identify areas requiring deeper qualitative exploration (Ivankova et al., 2006). The remaining 12 items, which received mid-range scores, indicate areas where participants expressed moderate or mixed views. These mid-range items are excluded from Table 4 to prevent visual clutter and maintain focus on the extremes that informed the subsequent qualitative interview protocol.

The highest score was the 10th item, which specified, "*MoNE carries out activities for adults to acquire literacy (e.g., reading or basic mathematical skills) through non-formal education.*" This was agreed upon by many participants in the sample, but not at the level of "strongly agree." Similarly, participants agree that MoNE provides lifelong learning opportunities for all (mean=3.59) and works to eliminate gender inequalities (mean=3.57). The participant responses reveal that the steps taken by the state have been quite fruitful in terms of these items.

Furthermore, participants believed that MoNE organizes professional development opportunities such as international training to build teacher capacity (mean=3.58). Beyond MoNE's initiatives, Turkish schools and universities employ government and EU funding to secure SDG training and international cooperation activities. For example, the Global Teachers for a Sustainable Future (n.d.) project is an international Erasmus initiative jointly run by educational organizations in Spain, Türkiye, Austria, Germany, Romania, Ukraine, and Sweden. This partnership aims to create new evidence-based teaching and learning practices for academics and teacher candidates who will promote education for sustainable development and global citizenship in their home learning environments. Similar SDG-aligned initiatives have been implemented across different regions in Türkiye. For instance, the Turkish National Commission for UNESCO organised a workshop titled "Experience Sharing in Achieving Sustainable Development Goals" on March 5, 2020, in cooperation with the Ministry of National Education (UNESCO Türkiye National Commission, 2022). Furthermore, the "Zero Waste Project", initiated by the Ministry of Environment and

Urbanisation in 2017, includes specific components designed to raise awareness among all segments of society, particularly children, regarding sustainable consumption and waste reduction (Presidency of Strategy and Budget, 2020). As part of this broader effort, the Ministry of National Education has developed dedicated educational portals, such as the Zero Waste Education Portal, and has revised the "Environment Education and Climate Change" course as an elective for 6th, 7th, and 8th grade students (MoNE, 2023a).

The data highlight some concerning areas that display the ongoing efforts of MoNE but not at the desired level that meets participants' expectations. Most strikingly, participants were undecided about MoNE's provision of appropriate and quality educational facilities/environments for all students (mean=2.99). Having adequate infrastructure and learning environments is vital for facilitating quality education in all regions of the country. Participants expressed the need for MoNE to take more actions to ensure all students acquire knowledge, skills, and competencies appropriate to the needs of contemporary society (mean=3.12). Additionally, the participants appeared to have limited exposure to SDG campaigns and awareness activities (mean=3.13).

Participants were also undecided or neutral about whether MoNE provides inclusive education for disadvantaged students (mean=3.29). Participants emphasized the need for MoNE to ensure all students complete primary education equally with high quality (mean=3.24). Participants also were not fully convinced about MoNE's initiatives for supporting technical/vocational education access to all citizens (mean=3.24), developing employment skills (mean=3.23), and ensuring that all students acquire the necessary knowledge and skills for the realization of sustainable development (mean=3.32).

Another area of concern is teachers' neutral stance on MoNE's efforts to incorporate human rights, global citizenship, and cultural diversity into student learning (mean=3.27). Creating safe and effective learning environments for students is a priority for all schools, but not at the desired level that participants envision (mean=3.30). Providing scholarship opportunities for students to access higher education (mean=3.35) also received lower ratings among the survey items.

This survey of teachers and school administrators in Türkiye regarding quality education indicators reveals both strengths and areas needing improvement in the educational system. These findings provide a nuanced picture of Türkiye's progress towards SDG 4, highlighting areas of success and persistent challenges. They offer a valuable case study for comparative analysis, allowing researchers to examine how global educational goals are interpreted, implemented, and perceived at the local level.

Specifically, the most highly rated items by participants include MoNE's efforts towards adult literacy through non-formal education, support for quality preschool education, international professional development for teachers, provision of lifelong learning opportunities for all, and efforts to eliminate gender inequalities. Conversely, the least highly rated areas highlight significant challenges, notably, the quality of educational facilities and environments ranks lowest, indicating a critical need for infrastructure improvements despite MoNE's substantial investments over the years (MoNE, 2022b). Additionally, there is a pressing need for activities to raise awareness of sustainable development. Other concerns include the adequacy of education to meet contemporary needs, equal quality of education for all, and equal access to technical or

higher education. These insights underscore critical areas where further attention and resources are necessary to elevate educational standards across Türkiye. While MoNE has made significant improvements, participants indicated that many areas need further development to reach international standards. Overall, participant responses suggest that Türkiye's performance regarding SDG 4 targets is at a moderate level, highlighting the need for ongoing efforts to achieve higher educational standards.

When it comes to qualitative findings, participants gave lower ratings to statements such as "*MoNE carries out adequate activities to raise awareness of sustainable development.*" These items and participants' overall perspectives on MoNE's SDG initiatives were analysed through semi-structured interviews conducted after the completion of the surveys.

The general findings were consistent with the survey results; participants expressed positive, neutral, and negative opinions on similar items. In this analysis, the researchers primarily emphasized criticisms raised by the participants, while acknowledging that positive comments were also present. These positive responses centred around how MoNE has initiated quality education initiatives, spanning technology integration and vocational initiatives to gender issues and disadvantaged groups. For example, one positive comment:

In recent years, MoNE has started to pay more attention to sustainable development goals. In particular, programs and course content that support SDG targets such as environmental education and gender equality have been developed...Topics such as environmental education, social responsibility, and global citizenship are included in the curricula.

This view, while encouraging, represents only one perspective among many. To better understand the range of participant views, the qualitative findings were organised thematically. In this context, providing frequencies or proportions for each theme enhances the transparency and credibility of the analysis. The analysis of data from 18 teachers and deputy principals yielded the following themes.

### **Adherence to SDGs and Specifically to SDG 4**

A large majority of participants (15 out of 18, 83.3%) expressed mixed perceptions about MoNE's alignment with SDGs. While some solid steps were acknowledged, there was consensus that much more is needed. One participant (Q03, female, middle school teacher) provided a balanced perspective:

In recent years, MoNE has started to pay more attention to sustainable development goals. In particular, programs and course content that support SDG targets such as environmental education and gender equality have been developed. Topics such as environmental education, social responsibility, and global citizenship are included in the curricula.

However, this participant also noted limitations, stating that while curriculum inclusion exists, implementation remains inconsistent. Another participant (Q02, male, high school teacher) was more critical, linking perceived inadequacies to international assessment performance:

Türkiye's performance in international assessments such as PISA tests is not comprehensively at the desired level. This suggests that either quality education initiatives are not being effectively implemented or are not translating into measurable improvements in educational outcomes.

A participant from a disadvantaged region (Q11, male, primary teacher) highlighted resource distribution issues:

I think that students who do not have a stable economic situation also have difficulties even in accessing the opportunities offered by the Ministry of National Education. Even if they are sent to school, students who lack nutrition and care cannot achieve the desired efficiency even if they benefit from the opportunities offered.

The findings show a gap between policy and practice. Although the curriculum includes SDG topics, this inclusion has not led to consistent implementation. Moreover, students from poor economic backgrounds struggle to benefit from available opportunities.

### **Inclusive and Equitable Education**

A large majority of participants in interviews (14 out of 18, 77.8%) expressed scepticism about inclusive education. The participants' reflections on inclusive education reveal a consistent pattern: while MoNE has established policies and programs for disadvantaged groups, implementation at the school level remains highly uneven.

One participant (Q12, male, high school teacher, no project experience) stated bluntly: *"I think MoNE fails in inclusive education because there are not enough teachers, schools and materials for students with disabilities."* Another participant (Q01, female, high school teacher) described the gap between policy and practice:

At my own school, looking at the practices, disadvantaged students are never taken into account except for the preparation of different written exam questions in terms of official visibility. The only thing done in practice for disadvantaged students is the EU-supported PIKTES project. Teachers do not make extra effort for disadvantaged students.

A participant from a major metropolitan area (Q05, female, middle school teacher, Izmir) noted that even in relatively advantaged regions, inequalities persist: *"I am not in agreement either [with the statement that MoNE provides inclusive education]. Even in a province like Izmir, it is possible to witness educational inequality in many schools."*

The findings indicate that inclusive education remains largely ineffective. The primary reason is a lack of sufficient teachers, resources, and materials for students with disabilities. Consequently, disadvantaged students receive little attention beyond a few externally funded projects. Even in wealthier provinces such as Izmir, educational inequality persists. This suggests that inclusive education requires not only policy and resources but also cultural change, a transformation in how all stakeholders understand disability, diversity, and educational equity. The fact that participants from both advantaged (Izmir) and disadvantaged regions reported problems indicates that inclusive education challenges are systemic rather than merely regional.

### **Curriculum and Pedagogy**

A majority of participants (11 out of 18, 61.1%) expressed dissatisfaction with VET implementation. One participant (Q02, male, high school teacher) provided a concrete example:

I am a vocational high school teacher and my observation is that vocational high school student numbers are decreasing. The support provided to Imam Hatip schools is not provided for vocational high schools. This causes the quality of students to decrease. We even have difficulty teaching basic subjects because students are not interested. Industrial companies in our city come to our school looking for graduates, but we have a hard time finding students

with the qualifications they want. There is currently a shortage of intermediate staff in the industry and this seems to be due to the lack of cooperation between education and industry.

A participant with project experience (Q03, female, middle school teacher) offered a more positive but still cautious view:

In the field of vocational education, vocational and technical high schools have started to take an active role in production. While the importance of technical education is emphasized again all over the world, we can see from the news that MoNE is doing something about it. MESEM [Vocational Training Center] can be an example of this.

The findings reveal a downward trend in vocational education. Enrollment in vocational high schools is declining, and the quality of students is decreasing at the same time. A further problem is the mismatch between school curricula and labor market needs, which has created a shortage of qualified intermediate staff. Therefore, cooperation between educational institutions and industry remains weak and requires urgent improvement.

### Regional Disparities and Contextual Factors

Almost all participants (17 out of 18, 94.4%) acknowledged regional disparities. One participant (Q02, male, high school teacher) explained:

MoNE appears to be taking concrete steps to improve the quality of education, such as providing free textbooks and facilitating access to digital educational materials. However, it is difficult to say that all efforts are evenly spread across the country and reach every student. In some regions and especially in disadvantaged communities, there are still serious inequalities in access to educational resources.

A participant from the eastern region (Q13, male, primary teacher, no project experience) confirmed: *"Due to regional differences in education, a student studying in the Southeast and East cannot receive education with the same opportunities as a student studying in western provinces."*

The findings demonstrate substantial geographical inequalities across the country. Despite providing free textbooks and digital materials, the Ministry does not distribute these resources evenly. As a result, students in the southeastern and eastern provinces receive significantly fewer educational opportunities than their counterparts in western regions.

### School Setting and Classes

A vast majority of participants (16 out of 18, 88.9%) identified infrastructure problems. One participant (Q11, male, primary teacher) described conditions: *"Our schools are very old and crowded. There are not enough cleaning staff and security personnel. In fact, most schools have none at all."* Another participant (Q14, female, high school teacher, no project experience) added:

Unfortunately, students in the east and west of the country do not have the same opportunities. In fact, even within the same province, differences can be seen. Classrooms and laboratories do not have enough hardware or software, and the areas suitable for music, art, and sports lessons are not equal in every school.

A participant from Istanbul (Q08, female, middle school teacher) noted that even in major cities, infrastructure is uneven: *"Due to the priority given to disadvantaged regions in order to achieve the principle of equality in education, I know that there are*

*schools in our western regions, for example Istanbul, where smart boards arrived only recently."*

The findings identify serious infrastructure problems in Turkish schools. Many schools are old and overcrowded, while also lacking sufficient cleaning and security staff. In addition, classrooms and laboratories have inadequate hardware and software. Facilities for music, art, and sports are unequal across schools. For example, even in Istanbul, some schools received smart boards much later than others due to funding priorities that favor disadvantaged regions.

### **Sustainable Development Awareness and Initiatives**

A large majority of participants (15 out of 18, 83.3%) expressed mixed views. One participant with extensive project experience (Q18, male, middle school teacher) noted:

Concrete steps are being taken targeting individuals or small areas. Projects on sustainable development have become increasingly important. On platforms such as TUBITAK, TEKNOFEST and European Union/eTwinning projects, plans for the 17 sustainable development goals stand out. These projects aim to raise awareness at the student level.

However, a participant without project experience (Q01, female, high school teacher) revealed the gap in awareness:

I only know about these goals because I carry out eTwinning projects. Otherwise, I would have encountered them for the first time. If the Ministry had taken active steps, all teachers would be aware of these goals and the Ministry's purpose and work plans in this regard.

Another participant (Q04, female, high school teacher) was unequivocal: *"MoNE has not taken an effective step to realize sustainable development goals."*

The findings show that awareness of sustainable development depends almost entirely on individual project participation. Teachers without direct project experience often encounter the SDGs for the first time during this study. Therefore, the Ministry is widely seen as having failed to take effective, system-wide action to raise awareness among educators.

### **Discussion**

This study explores Turkish participants' perspectives on MoNE's quality education initiatives concerning SDG 4 (Quality Education). Given the limited research analyzing Türkiye's performance in terms of the quality education goal, this study contributes to the existing literature through its quantitative and qualitative findings.

Quantitative findings revealed MoNE's most highly endorsed efforts, such as adult literacy and basic mathematical skills through non-formal education, support for quality preschool education, international professional development for teachers, provision of lifelong learning opportunities, and efforts to eliminate gender inequalities. Conversely, the least endorsed items reveal significant challenges; notably, the quality of educational facilities and environments ranks lowest in the 18-item survey, indicating a critical need for infrastructure improvements across all regions. There is also a pressing need to adapt the curriculum and teaching practices to help students acquire age-appropriate knowledge, skills, and competencies, along with increased campaigns and activities to raise awareness of sustainable development among school stakeholders.

The qualitative data analysis yielded several themes: "Adherence to SDGs and SDG 4, Inclusive and Equitable Education, Curriculum and Pedagogy, Vocational and Technical Education, Regional Disparities and Contextual Factors, School Setting and Classes, and Sustainable Development Awareness and Initiatives" Participants believed that ongoing problems under these themes prevent the Turkish education system from maximizing its outputs. These themes were derived from both quantitative and qualitative data.

Regarding vocational education, MoNE has taken effective steps to empower vocational and technical education (VET) across the country as a main priority (Özer & Perc, 2022). However, participants expressed dissatisfaction with MoNE's actual work to promote employment and entrepreneurship skills among students at different school levels, along with providing high-quality vocational education that translates into the workforce. Participants indicated that challenges remain in the declining enrollment in vocational high schools and the perceived disconnect between education and the job market.

A major issue highlighted in both quantitative and qualitative findings is MoNE's provision of proper and quality educational facilities and environments for all students. Teachers indicated that school facilities and learning environments vary significantly nationwide. Notably, Veisson and Kabaday (2018) found that Turkish preservice teachers in their study defined the quality of education as the physical and quality conditions of the school. Thus, the efficiency of the classroom setting and teaching environment can be considered an important criterion for Turkish educators.

Despite large investments over the years, the disparity in school environments across regions has contributed to educational inequalities in Türkiye (Özer & Perc, 2022). Özer (2023) asserts that Türkiye has transitioned its education system to the massification phase, achieving schooling rates over 99% from primary through other levels. The government has implemented several supportive measures, including free meals, transportation, scholarships, accommodation assistance, and conditional financial support for continued education. Despite these large-scale efforts over the years, the achievement gap between schools persists, partly due to historical disparities between the West and East of Türkiye and partly due to the massification of education. According to Özer (2023), the Matthew effect is visible in the Turkish education system, where advantages tend to accumulate for those who are already advantaged. This effect has deepened the gaps, thereby increasing inequality, particularly between the western and eastern regions of the country.

Substantial regional differences exist across Türkiye, particularly in economic and cultural aspects (Ataç, 2019). Factors such as socioeconomic background, gender, immigration status, and geographic location contribute to significant disparities in educational outcomes within the country (OECD, 2022). These disparities will likely persist for many years, as Türkiye has been confronting a series of challenges that impede progress toward the SDGs. These include hosting millions of forced migrants from wars in neighboring countries, dealing with droughts exacerbated by climate change, and recovering from recent earthquakes that have impacted approximately 10 million people. These events significantly influence public investments and policies (Cokcaliskan et al., 2024). Moreover, as study participants noted, dropout rates and the

tendency of economically disadvantaged students to enter the labor force prematurely persist.

The educational inequalities identified in this study are consistent with findings from multiple monitoring reports. For instance, Tunca et al. (2022) documented that approximately 570,293 children of compulsory school age remained outside formal education, with the lowest enrollment rates concentrated in southeastern and eastern Anatolia, where girls faced disproportionate barriers to access, particularly at the secondary level. Subsequently, Kesbiç et al. (2025) reported that this figure had risen to approximately 1.46 million children, with infrastructure quality, teacher distribution, and access to pre-primary education continuing to show significant inter-provincial disparities. These findings collectively reinforce the cumulative disadvantage pattern observed in the present study. Moreover, this persistent inequality is particularly consequential given Türkiye's demographic "window of opportunity." According to Korlu (2024), although this window remains open, it is approaching its closure; while demographic indicators still signal opportunity, the volatility of the current polycrisis era, characterized by migration, natural disasters, and economic instability, makes further delay in educational reforms untenable.

The cumulative disadvantage pattern observed in this study is consistently supported by empirical research on school dropout in Türkiye. A systematic review of 47 studies found that academic failure, absenteeism, financial difficulties, early marriages, family indifference, and negative peer influence were the most frequently cited dropout causes at the secondary level (Eranıl, 2024). Similarly, Bayrakçeken, Cinic, and Alkan (2025) demonstrated that girls, older adolescents, children from large households, and those engaged in child labour faced significantly higher dropout risks, with agricultural workers being 30.6% more likely to drop out, while maternal education and parental employment served as protective factors. Elitaş (2025) further revealed that although the dropout ratio decreased from 21.11% to 10.76% between 2004 and 2023, significant gender, regional, and family-structure disparities persist, with regional effects on dropout probability being stronger for girls, reflecting patriarchal social structures and conservative attitudes toward girls' schooling. Finally, Karacan Ozdemir et al. (2024) found that the exam-oriented education system, negative school attitudes, low academic performance, economic challenges, and early marriage predicted students' transition to open high schools (operationalized as dropout), a process that offered university exam preparation benefits but also entailed reduced social interaction, limited teacher support, and diminished educational quality. Taken together, these studies reinforce that dropout risks are shaped by interconnected individual, familial, and structural factors that vary systematically across educational stages and demographic groups.

The issue of educational disparities, particularly those based on economic factors, is not unique to Türkiye but is a widespread challenge faced by many countries striving to achieve high-quality educational outcomes at various levels (UNESCO, 2020). Unfortunately, despite significant educational investments, ongoing problems arising from these major events will continue to pose substantial challenges for the Turkish education system and other countries experiencing similar problems.

A recurrent theme across both data collection phases is that all students must acquire knowledge, skills, and competencies that align with contemporary societal and

technological needs. Despite MoNE's efforts in curriculum reform and teacher training to align with global educational advancements, participants consistently expressed concerns that the current curriculum, teacher profiles, and pedagogical methods fall short of adequately preparing students for the demands of the 21st century. Supporting this perspective, Çiftçi et al. (2021) argue that educational environments must be restructured according to modern educational paradigms and 21st-century skills. This necessitates incorporating and evaluating critical thinking, metacognitive skills, real-life scenarios, and authentic learning opportunities within the classroom. Additionally, Cosanay and Karali (2022) highlight that Türkiye's PISA results indicate a lack of flexible teaching practices that facilitate experiential and active learning. Nevertheless, some participants acknowledged positive developments in the qualitative data analysis, noting initiatives by MoNE aimed at fostering 21st-century skills through STEM education, the creation of flexible learning spaces, eTwinning, and other project-based learning approaches, as well as the implementation of hybrid and distance education programs across various age groups.

Regarding sustainable development initiatives, Türkiye has supported sustainable development policies. Several curricular and course adaptations have been made at both compulsory education levels (Baysal et al., 2022; Ergün et al., 2023) and in higher education (Korkmaz, 2020; Yılmaz Fındık & Erçetin, 2023). Despite these efforts, participants in this study believed that MoNE's activities to raise awareness of sustainable development are inadequate. They argued that existing awareness-raising activities need to be strengthened, as the push for awareness of the SDGs is crucial and necessitates innovative strategies, collaboration, and persistent efforts (Suklun & Bengü, 2024). Kucuk and Ekinci (2021) interviewed experts about why current education programs on sustainable development fail to raise awareness significantly. The experts identified three main reasons for the ineffectiveness: a lack of comprehensive scope in the curriculum, the curriculum's theoretical nature and lack of practical application in daily life, and deficiencies in the external environment, such as family and peer interactions. These challenges are not unique to Türkiye and resonate with findings from international studies on the implementation of education for sustainable development in various countries. Indeed, most countries are still striving to effectively incorporate principles of sustainability into their education systems (Paoli, 2024). Research from Spain, for instance, found that while sustainability principles are officially incorporated into national curricula, teachers report inadequate training and resources to implement ESD effectively (García-González et al., 2020). Similar challenges have emerged in South Africa, where a disconnect between curriculum rhetoric and classroom practice persists, with teachers citing a lack of contextually relevant materials and assessment difficulties as primary barriers (Rosenberg et al., 2020). Despite these shared difficulties, several countries have implemented concrete ESD measures. In Norway, Sweden, and Taiwan, for example, sustainability has been integrated as a cross-curricular theme or as specific subject content. Additionally, whole-school or systemic approaches addressing climate change, biodiversity loss, and resource use have been adopted in the Czech Republic, Hong Kong SAR, and Sweden (Lee et al., 2025). Meanwhile, Singapore has developed the Eco-Stewardship Programme, which fosters values-driven thinking through experiential learning, and Taiwan has promoted student-led sustainability action plans in partnership with local

communities (Lee et al., 2025). Moving to the Mediterranean region, Cyprus has established a national implementation plan and a permanent Unit of Education for the Environment and Sustainable Development to coordinate ESD policy across all education levels. Greece, in turn, has adopted a whole-institution approach spanning early childhood, primary, and secondary education, supported by biennial school reports and a “Sustainable School Label” certification based on 40 indicators (Goad, 2020). Malta has gone further by integrating sustainability themes into curricula from upper secondary through doctorate levels, while also offering dedicated Master’s and Doctorate programs in ESD through its Centre for Environmental Education and Research (Goad, 2020). In Central Asia, ESD implementation remains at an earlier stage, though notable progress has been made: Tajikistan has introduced environmental education reforms, Kyrgyzstan has developed a “University 4.0” roadmap, and Kazakhstan’s Al-Farabi Kazakh National University leads the UN Academic Impact Program’s Global Hub on Sustainability (Bespalyy et al., 2024). A systematic review encompassing 45 countries further confirms that most nations struggle to effectively embed sustainability principles into their education systems, with common obstacles including insufficient teacher preparation, overcrowded curricula, and a lack of institutional leadership (Leicht et al., 2018). Together, these cross-national patterns indicate that the challenges observed in Türkiye, where participants viewed the Ministry of National Education’s awareness-raising activities as insufficient (Suklun & Bengü, 2024), are not isolated but rather reflect broader global difficulties in translating SDG commitments into sustained classroom practice.

The most positively endorsed items in the quantitative component of the study were MoNE’s efforts to increase access to quality preschool education, its focused activities to help adults acquire literacy and basic skills through non-formal education, and its provision of lifelong learning opportunities for all. These areas of progress align with global trends in education policy, reflecting the international emphasis on early childhood education, adult literacy, and lifelong learning as key components of SDG 4. The net enrolment rate for pre-primary education globally has risen from 2002 to 2020. Similarly, in Türkiye, enrolment in preschool education has significantly increased, with the net rate of 5-year-old children enrolled in preschool rising from 39% in 2012 to 78% in 2020, aiming for a target of 93% (MoNE, 2022b; Özer & Perc, 2022; Our World in Data team, 2023). There has also been a strong emphasis on adult education, with nationwide projects from the birth of the Turkish Republic to the present now integrated into the country’s lifelong learning plans (Göçer, 2016; Yenil & Şahan, 2024). Similarly, the share of adults aged 15 and older who can both read and write has been increasing worldwide (Our World in Data team, 2023). Participant opinions and the literature align regarding the progress made over time in both the Turkish and global contexts, indicating that Türkiye has been proactively keeping pace with global changes.

Inclusive education emerged as a significant issue in the qualitative data, with participants expressing a neutral stance on MoNE’s effectiveness in providing quality education for disadvantaged students. Nevertheless, MoNE has undertaken various initiatives to enhance inclusive education for diverse groups. For instance, the Promoting Integration of Syrian Kids into the Turkish Education System (PIKTES) project has been a notable endeavor aimed at integrating Syrian students into the

Turkish educational framework (Çelik Keskin & Atay, 2023). However, inclusive education extends beyond the scope of refugee education. Baykaldı et al. (2024) revealed that teachers often hold negative attitudes towards the inclusion of students with visual impairments in mainstream classrooms, despite a general consensus on the importance of inclusive education. Furthermore, Yilmaz and Yeganeh (2021) identified a pervasive lack of conceptual clarity among teachers regarding the definition of inclusive education. While most educators comprehend the overarching philosophy of inclusiveness, only a few translate this understanding into concrete instructional practices. These findings underscore the need for a more nuanced and comprehensive approach to inclusive education in a world where international migration movements are accelerating.

Regarding vocational education, MoNE has implemented effective plans to enhance vocational and technical education (VET) across the country (MoNE, 2019). However, participants expressed dissatisfaction with MoNE's efforts to promote employment and entrepreneurship skills among students at various school levels, as well as with the provision of high-quality vocational education that translates effectively into the workforce. Participants noted that while the focus on vocational education has greatly increased, challenges remain, particularly in the declining enrollment in vocational high schools and the perceived disconnect between education and the job market. This perceived gap suggests that current VET programs may not be sufficiently responsive to the rapidly evolving demands of the labor market and that there is inadequate communication between schools and companies. According to Özer and Perc (2020), vocational schools, as they currently exist in many contexts, may not be fulfilling their potential to provide equal opportunities and social mobility. Thus, significant reforms are needed in VET to better serve all students, especially those from disadvantaged backgrounds, and to truly deliver on the promise of quality education leading to good employment opportunities.

### Conclusion

This study offers valuable insights into MoNE's initiatives concerning the quality education goal (SDG 4). The research reveals a mixed picture of progress and persistent challenges in Türkiye's education system, reflecting the complex interplay between global educational goals and local implementation realities, a key focus of contemporary comparative education research (Steiner-Khamsi, 2014).

While acknowledging progress in areas such as non-formal adult education, preschool access, and lifelong learning opportunities, the study also identified pressing issues hindering the provision of quality education. Participant responses highlighted fundamental problems in educational facilities, students' challenges in acquiring age-appropriate knowledge, skills, and competencies, curriculum deficiencies, inclusivity gaps, VET programs, and limited awareness of sustainable development. Based on these findings, priorities for improving the Turkish education system include providing quality infrastructure, ensuring comprehensive skills development for all students, and integrating core SDG values such as sustainability and inclusivity into curricula and teacher practices. To achieve these goals, Türkiye could benefit from "policy borrowing" (Steiner-Khamsi, 2014), researching and adapting successful educational policies from other contexts, particularly in areas needing improvement.

The qualitative findings provided a comprehensive analysis of the problematic areas hindering Türkiye's efforts to achieve quality education goals. The findings suggested that the Turkish government must address both general and regional disparities over the long term. This phenomenon of regional educational disparities is not unique to Türkiye and provides a multifaceted basis for comparative studies on educational equity across different national contexts (Graetz et al., 2020; Lee & Lee, 2024). The Matthew effect (Merton, 1968), where advantages beget further advantages, was evident in Turkish education outcomes, influenced by historical and economic disparities between the country's western and eastern regions. As Özer (2023) notes, alongside the massification of Turkish education in recent years, which serves approximately 19 million students, Türkiye continues to grapple with gaps rooted in its past and uneven economic growth among regions. This challenge is exacerbated by broader issues facing Türkiye, such as hosting large numbers of refugees and recovering from natural disasters, which strain educational resources and investments. Ensuring that all students benefit equally from educational opportunities remains a critical challenge.

In conclusion, this research highlights the complex interplay of progress and persistent challenges in Türkiye's pursuit of quality education for all. It emphasizes the need for continued efforts to address regional disparities, resolve infrastructure and high-quality teaching space problems, enhance inclusive education practices, update curricula and teaching methods, strengthen the connection between vocational education and employment, and raise awareness of SDG policies at the school level. These findings provide valuable direction for policymakers and educators in Türkiye and offer insights for comparative education research on implementing SDG 4 in diverse national contexts. Policymakers could use these findings to strengthen their policy learning and develop implementation plans for Türkiye's progress towards high-quality and inclusive education for all. From a comparative perspective, Türkiye's efforts in recent decades present a valuable case study for examining how middle-income countries can navigate the complex task of aligning national educational policies with global SDGs while addressing local challenges within different historical and economic backgrounds.

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### **Statement of Responsibility**

MFD: Conceptualization, software, methodology, validation, formal analysis, investigation, resources, data curation, review and editing, visualization, supervision, project administration. AG: Conceptualization, software, methodology, validation, formal analysis, investigation, resources, writing the original draft, writing the review and editing, visualization, supervision. MAB: Conceptualization, software, methodology, validation, formal analysis, ÇK: Conceptualization, methodology, data curation. All authors have read and agreed to the published version of the manuscript.

### **Conflicts of Interest**

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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