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I am very pleased to publish first issue in 2026. As an editor of Turkish International Journal of Special Education and Guidance & Counselling (TIJSEG) this issue is the success of the reviewers, editorial board and the researchers. In this respect, I would like to thank to all reviewers, researchers and the editorial board. The articles should be original, unpublished, and not in consideration for publication elsewhere at the time of submission to Turkish International Journal of Special Education and Guidance & Counselling (TIJSEG), For any suggestions and comments on TIJSEG, please do not hesitate to send mail. The countries of the authors contributed to this issue (in alphabetical order): Cyprus, Kenya, Lebanon, Nepal, Nigeria, North Macedonia, Philippines, and Turkey.

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PARENTAL PERSPECTIVES ON INCLUSIVE EDUCATION AND CHILDREN'S WELL-BEING: PARADOXES IN KOSOVO

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Abstract

Inclusive education is widely recognized as a key principle for promoting equal participation and well-being among children with disabilities; however, its implementation remains challenging, particularly in developing and transitional contexts. This study explores parental perspectives on school inclusion and the well-being of children with physical and sensory disabilities in Kosovo, using an ecological and bidirectional framework. A qualitative research design was employed, involving semi-structured interviews with 15 parents of children aged 8 to 15 attending mainstream schools, and data were analyzed using thematic analysis. The findings reveal that inclusion is experienced through interconnected tensions across structural, relational, and experiential dimensions, including gaps between policy and practice, tensions between care and reduced expectations in teacher practices, and contradictions between formal inclusion and experiences of difference in peer relationships. The study also identifies bidirectional dynamics, whereby children's well-being shapes their social interactions, while relational experiences simultaneously influence well-being, creating both positive and negative cycles. Overall, inclusion emerges as a dynamic and context-dependent process, highlighting the need to move beyond access-oriented approaches toward practices that support meaningful participation, relational belonging, and psychological well-being.

Keywords: Inclusive education, well-being, children with disabilities, parental perspectives, paradoxes.

INTRODUCTION

International frameworks such as the United Nations Convention on the Rights of Persons with Disabilities (United Nations, 2006) highlight the importance of inclusive educational environments that promote equal opportunities, participation, and social belonging for children with disabilities. Within inclusive settings, schools play a critical role in supporting not only the academic development of children with disabilities but also their psychological and social well-being (Koster, 2010; Linder & Schwab, 2020). Research suggests that inclusive environments can enhance children's sense of belonging, social participation, and emotional development when appropriate support systems are in place.

Parents play a central role in understanding the educational experiences of children with disabilities. As primary caregivers and advocates, parents often have valuable insights into how schools support or hinder their children's inclusion. Their perspectives can provide important information about the effectiveness of inclusive practices, the level of support provided within schools, and the challenges children may encounter in educational settings (Shurr et al., 2023; Mantilla et al., 2022).

Despite the increasing emphasis on inclusive education internationally, only a small number of studies have explored parental perspectives on school inclusion in the context of Kosovo. Existing research has begun to examine the experiences and attitudes of parents of children with disabilities toward inclusive education, highlighting both the perceived benefits of inclusion and concerns regarding school support, resources, and teacher preparedness (Devolli & Zabeli, 2024; Kadriu &



Agani-Destani, 2026) Understanding parents' experiences can therefore contribute to identifying factors that support or hinder the well-being and inclusion of children with disabilities in schools. It is particularly important to examine these experiences from an ecological and bidirectional perspective. Therefore, this study aims to explore parental perspectives on school inclusion and the well-being of children with disabilities in Kosovo, through an ecological and bidirectional lens.

This study contributes to the literature in three ways. First, it advances understanding of inclusive education by conceptualizing it as a set of lived tensions and paradoxes rather than a linear or uniformly positive process. Second, by integrating ecological systems theory with a bidirectional and transactional perspective, the study highlights how children are not only shaped by their environments but also actively influence their relational contexts through their well-being and interactions. Third, by focusing on an under-researched context, the study provides context-sensitive insights that extend international debates on inclusion, particularly in systems where strong policy frameworks coexist with implementation challenges.

Literature Review

Theoretical Framework: An Ecological and Bidirectional Perspective

This study is grounded in Bronfenbrenner's ecological systems theory, which conceptualizes children's development and well-being as the result of dynamic interactions between the individual and multiple environmental systems, including family, school, and the broader social context (Bronfenbrenner, 1979). From this perspective, children's experiences are shaped not by isolated factors, but by the interdependence of these systems and the quality of interactions within and across them. In the context of inclusive education, this implies that children's participation and well-being are influenced not only by classroom practices, but also by relationships between families, schools, and wider institutional structures (Bronfenbrenner & Morris, 2006).

However, while ecological theory provides a strong framework for understanding contextual influences, it has often been applied in a predominantly descriptive manner in inclusive education research, with limited attention to the reciprocal processes through which children actively shape their environments. To address this limitation, the present study integrates a bidirectional and transactional perspective, drawing on Sameroff's model of development (Sameroff, 2009). This perspective emphasizes that children's well-being and school experiences are mutually constitutive: children's emotional states, behaviors, and competencies influence how they are perceived and treated by others, while relational and institutional contexts simultaneously shape their development. By combining ecological and transactional perspectives, this study moves beyond static conceptualizations of inclusion and instead frames it as a dynamic and relational process. In doing so, it addresses a key limitation in existing research, which has often overlooked the bidirectional nature of inclusion and well-being.

Parental Attitudes toward Inclusive Education

Parental attitudes toward inclusive education have been widely examined, with research generally reporting positive orientations toward the principles of inclusion (Hilbert, 2014). However, these findings should be interpreted with caution, as positive attitudes often coexist with significant concerns regarding implementation. Studies indicate that parental support is conditional and varies depending on the type and severity of disability (Kárpáti & Miklósi, 2026), with more favorable views toward the inclusion of children with physical or learning disabilities than those with behavioral or intellectual disabilities (Paseka & Schwab, 2020).

Moreover, parental attitudes appear to evolve in response to direct experiences with inclusive education systems. Exposure to inclusive settings can foster more positive perceptions over time; however, it may also reveal structural, organizational, and pedagogical limitations that challenge initial expectations (Mavropalias et al., 2019; Bahdanovich Hanssen & Erina, 2022; Shurr et al., 2021). These findings suggest that parental attitudes are not fixed, but are shaped by the quality,



consistency, and responsiveness of inclusive practices. Importantly, parental attitudes toward inclusion are also associated with children's social and emotional outcomes, highlighting their role in shaping children's quality of life within inclusive contexts (Santilli et al., 2022).

Taken together, the literature points to an underlying tension between ideological support for inclusion and concerns about its effectiveness in practice. However, much of the research continues to categorize parental attitudes as either positive or negative, thereby overlooking the ambivalence and complexity that characterize parents' lived experiences of inclusion.

Benefits and Barriers of Inclusive Education

A substantial body of research highlights the potential benefits of inclusive education for children with disabilities, particularly in relation to academic achievement, social participation, and emotional development (Bossaert et al., 2013; Hehir et al., 2016; Koster et al., 2010; Szumski et al., 2017). Inclusive settings provide opportunities for interaction with typically developing peers, which can support socialization, friendship formation, and social participation; however, the quality of these interactions remains highly dependent on contextual and relational factors (Carter et al., 2014; Koster et al., 2010).

At the same time, these benefits are not inherent outcomes of inclusion, but depend on the conditions under which inclusion is implemented. Research consistently identifies a range of structural and relational barriers that limit its effectiveness. One of the most frequently cited challenges relates to insufficient teacher preparation, with parents expressing concerns about teachers' ability to meet diverse learning needs (Hilbert, 2014; Paccaud et al., 2021; Sharma et al., 2012). Structural constraints, including limited resources, large class sizes, and inadequate access to assistive technologies, further restrict the implementation of inclusive practices (Florian, 2014; Ainscow, 2020; Alzahrani, 2020).

However, these barriers are often treated in isolation within the literature, rather than as interconnected processes that shape the overall experience of inclusion. Relational challenges, such as bullying, social exclusion, and limited opportunities for meaningful peer interaction, are frequently reported but not always integrated into broader analyses of inclusion (Bossaert et al., 2013; Pijl et al., 2008). Communication gaps between families and schools further complicate these dynamics, as parents often report feeling insufficiently involved in decision-making processes (Paccaud et al., 2021). Structural constraints, including insufficient teacher preparation, policy inconsistencies, and broader systemic limitations, further reinforce these challenges (Jabri et al., 2025; Moriña, 2017).

This fragmented approach limits the ability to understand how structural and relational factors interact to influence children's well-being. A more integrated perspective is therefore needed to capture the complexity of inclusion as it is experienced in practice.

Research Gap and Study Focus

While existing research provides valuable insights into parental attitudes, perceived benefits, and challenges of inclusive education, several important gaps remain. First, although some studies have examined parental perspectives on inclusive education in Kosovo (Devolli & Zabeli, 2024; Kadriu & Agani-Destani, 2026), research remains limited in scope, particularly in relation to how these perspectives are linked to the psychological well-being of children with disabilities. Second, much of the literature adopts a predominantly unidirectional perspective, focusing on how school environments influence children, while giving less attention to how children's well-being and relational experiences shape their engagement with school, in the lens of the bidirectional dynamics (Sameroff, 2009).

Furthermore, although prior studies identify both positive and negative aspects of inclusion, they rarely conceptualize these as interconnected or paradoxical processes (Bossaert et al., 2013). As a result, the tensions between inclusive ideals and lived experiences remain insufficiently theorized.



This limits the ability to fully understand inclusion as a dynamic and relational process shaped by ongoing interactions between individuals and their environments.

Addressing these gaps, the present study adopts an ecological and bidirectional framework (Bronfenbrenner, 1979; Sameroff, 2009) to explore parental perspectives on school inclusion and children's well-being in Kosovo. By focusing on the interplay between structural, relational, and experiential factors, the study contributes to a more nuanced understanding of inclusion as a process characterized by tensions, contradictions, and reciprocal influences. Accordingly, the study addresses the following research questions:

Research Question 1: How do parents perceive school inclusion and the well-being of children and adolescents with disabilities in Kosovo?

Sub-question 1: How do parents interpret the role of social relationships and their perceived reciprocal influence on children's well-being within inclusive school contexts?

METHOD

Research Design

This study employed a qualitative, exploratory research design to examine parental perspectives on school inclusion and the well-being of children and adolescents with disabilities in Kosovo. A qualitative approach was considered appropriate as it enables an in-depth understanding of parents' experiences, perceptions, and interpretations of inclusive education within real-life school contexts (Creswell, 2014; Johnson & Christensen, 2014). This approach is particularly suited to capturing the complexity of inclusion as a relational and context-dependent process.

Participants and Sampling

The participants in this study were parents of children with physical and sensory disabilities (including visual impairments and blindness) who attend mainstream schools in Kosovo. Participants were selected using purposive sampling, as this approach enables the recruitment of individuals with direct and relevant experience of inclusive education. The inclusion criteria required that participants be parents or primary caregivers of children aged between 8 and 15 years who were identified as having a physical or sensory disability and were enrolled in inclusive educational settings.

As presented in Table 1, the sample comprised 15 parents of children with disabilities enrolled in mainstream schools, including 8 mothers and 7 fathers, reflecting a relatively balanced representation of parental roles. The total number of 15 parents, was considered appropriate for qualitative research aiming to achieve depth of understanding rather than statistical generalization (Creswell & Creswell, 2018). Previous research suggests that data saturation in qualitative interviews can often be reached within relatively small samples, typically around 12 participants (Guest et al., 2006). In terms of the children's disability profiles, 6 participants were parents of children with visual disabilities, while 9 were parents of children with physical disabilities. The sample also included parents of 7 girls and 8 boys. This distribution allowed for the inclusion of diverse parental perspectives related to different types of sensory and physical impairments within inclusive educational settings. To protect participants' anonymity, detailed demographic information beyond parental role and type of disability was not reported.

Table 1. Demographics of the participants.

Code	Parental Role	Child's disability
P1	Mother	visual disability
P2	Mother	visual disability
P3	Father	visual disability

**Table 2 (Continued).** Demographics of the participants.

Code	Parental Role	Child's disability
P4	Father	visual disability
P5	Father	visual disability
P6	Father	visual disability
P7	Mother	visual disability
P8	Father	visual disability
P9	Mother	visual disability
P10	Mother	physical disability
P11	Mother	physical disability
P12	Father	physical disability
P13	Father	physical disability
P14	Mother	physical disability
P15	Father	physical disability

Participants were recruited through organizations supporting children with disabilities in Kosovo. Participation was voluntary, and parents were informed about the purpose of the study prior to providing informed consent. All data were treated confidentially, and participants' anonymity was ensured.

Data Collection

Data were collected through semi-structured interviews with parents. Semi-structured interviews were selected because they allow participants to share their experiences and perspectives in depth while also enabling the researcher to guide the discussion around key topics related to school inclusion and children's well-being. An interview guide was developed to ensure consistency across interviews while allowing flexibility to explore participants' individual experiences. The guide included open-ended questions and prompts aligned with the study's research questions. The interview questions focused on parents' perceptions of their children's experiences in school, the level of support provided by teachers and schools, the challenges encountered in inclusive educational settings, and the perceived impact of school inclusion on their children's well-being. All interviews were conducted individually and lasted approximately 45 minutes. With participants' consent, interviews were audio-recorded and later transcribed for analysis. Ethical considerations were carefully followed, including voluntary participation, informed consent, and the protection of participants' anonymity and confidentiality.

Data Analysis

Data were analyzed using thematic analysis as outlined by Braun and Clarke (2021), following an inductive–deductive approach. The analysis involved familiarization with the data, systematic coding, and the development and refinement of themes. The software ATLAS.ti was used to facilitate data management, coding, and the organization of emerging themes. Particular attention was given to identifying patterns, contrasts, and tensions within parents' accounts, enabling the exploration of both shared experiences and divergent perspectives. This approach allowed for a nuanced understanding of inclusion as a complex and context-dependent process. The analysis was further guided by an ecological and bidirectional perspective, supporting the interpretation of themes in relation to interactions between children, families, and school environments, as well as the reciprocal influences between children's well-being and their educational experiences.

Ethical Considerations

This study was conducted in accordance with established ethical principles for research involving human participants, including the Declaration of Helsinki. In the context of the authors' institutions,



formal ethical approval is not required for interview-based research of this nature. Participation in the study was voluntary, and all participants were informed about the purpose of the research, the nature of their involvement, and their right to withdraw at any time without any consequences. Written informed consent was obtained from all participants prior to data collection. Confidentiality and anonymity were strictly maintained throughout the research process. Personal identifiers were removed from the data, and codes (P1 to P15) were used in reporting the findings to protect participants' identities. Audio recordings and transcripts were securely stored and accessed only by the researcher.

Trustworthiness of the Study

To ensure the trustworthiness of the findings, several strategies were employed in line with qualitative research standards (Lincoln & Guba, 1985). Credibility was enhanced through in-depth engagement with participants and the use of verbatim quotes to support interpretations. Dependability was supported by maintaining a clear and systematic coding process using ATLAS.ti, allowing for transparency in data analysis. Confirmability was addressed by grounding interpretations in the data and minimizing researcher bias through iterative reflection during the analytical process. Finally, transferability was supported by providing detailed contextual descriptions of participants and settings, enabling readers to assess the applicability of the findings to other contexts.

RESULTS

Thematic analysis was conducted using ATLAS.ti, resulting in the identification of key codes, which were organized into categories and overarching themes, presented in Table 2. The analysis revealed a set of interconnected themes reflecting key tensions and paradoxes within inclusive education, particularly between policy and practice, support and limitation, and inclusion and participation. In addition, the findings highlight the bidirectional dynamics between children's well-being and their social relationships within school contexts.

Table 3. Codes, categories, and themes.

Codes	Categories	Themes
Legal framework vs. weak implementation	Policy–practice gap	School Inclusion: Ideals vs. Realities
Limited teacher capacity for IEPs; lack of resources; insufficient assistants; inaccessible infrastructure	Structural and capacity constraints	School Inclusion: Ideals vs. Realities
Presence without active participation	Limited functional inclusion	School Inclusion: Ideals vs. Realities
Feeling different; limited opportunities; need for equal treatment	Awareness of difference and need for inclusion	Psychological & Social Well-being
Emotional strain; tension; discomfort	Emotional distress	Psychological & Social Well-being
Concerns about independence; unclear future	Future uncertainty	Psychological & Social Well-being
Self-doubt; risk of inferiority; need for self-worth	Self-perception and self-value	Psychological & Social Well-being
Lack of resources; large class sizes; lack of assistants	Structural constraints in teaching	Teacher Practices
Caring but underprepared teachers; over-support; reduced expectations	Tension between care and limited expectations	Teacher Practices
Peer support; social learning; teacher-mediated interactions	Supportive peer interactions	Peer Relationships
Limited interaction outside school; dependency on parents	Restricted social participation	Peer Relationships

**Table 4 (Continued).** Codes, categories, and themes.

Codes	Categories	Themes
Bullying; peer rejection; negative peer experiences	Peer exclusion and victimization	Peer Relationships
Influence of parental attitudes; stigma	Social attitudes and stigma	Peer Relationships
Self-confidence shaping relationships; improvement influencing teacher response	Well-being influencing relationships	Bidirectional Dynamics
Bullying leading to withdrawal	Negative relational cycles	Bidirectional Dynamics
Positive relationships enhancing well-being; inclusion experiences	Positive relational cycles	Bidirectional Dynamics

Table 2 summarizes the key codes, categories, and themes deriving from the analysis, organized into five main areas. The process of categorizing codes into broader categories and themes resulted in the identification of five main themes: School Inclusion: Ideals vs. Realities, Psychological and Social Well-being, Teacher Practices, Peer Relationships, and Bidirectional Dynamics. The following sections present each theme in detail, illustrating how these tensions and paradoxes are reflected in parents' accounts and how inclusion and well-being are shaped through dynamic interactions between children, families, and school environments

Theme 1: Parental Understandings of School Inclusion: Ideals and Realities

Parents revealed a clear distinction between the principles of inclusive education and their practical implementation within school settings, highlighting a central tension between policy and practice. While participants demonstrated awareness of their children's rights and acknowledged that legal framework supporting inclusion is well in place, they consistently emphasized gaps in how these policies are implemented in everyday school contexts. Seven out of fifteen parents noted that, although inclusive education is well established in legislation, its implementation remains limited. As one parent stated, *"According to the laws, each child should be treated equally. Laws are very well placed in our country, but they lack implementation."* This reflects a broader structural paradox in which strong policy commitments coexist with weak institutional execution. Four out of fifteen parents raised concerns related to the competences of teachers to support their children's rights, particularly by implemented individualized education plans (IEPs). One parent explained, *"I know that my child is supposed to be educated with an individual education plan, but I am not sure whether the teacher has the necessary competences to do so."* This highlights uncertainty regarding the preparedness of school staff and reflects a tension between formal educational provisions and the practical capacity to deliver them.

In addition, material and infrastructural barriers were frequently reported. The lack of adapted learning materials, such as enlarged texts, Braille literature, and limited physical accessibility within school buildings were identified as significant obstacles. For example, one parent stated, *"There are no enlarged writing materials,"* while another noted, *"For my child it is difficult to get to the second floor of the school building. There are no elevators."* Such barriers not only limit access but also shape children's opportunities for meaningful participation within the classroom.

Nine out of fifteen parents also emphasized the insufficiency of support services, particularly the lack of trained assistants and specialized staff. Although some training initiatives for teachers were acknowledged, they were perceived as insufficient. As one parent reflected, *"I know that teachers have often undergone trainings, but I don't think they were sufficient. Simply, more specialized assistants should be in place."* These limitations were perceived as having a direct impact on children's well-being and level of participation. Parents frequently described a situation in which children are physically present in the classroom but not meaningfully engaged in the learning process, reflecting a paradox of inclusion as presence without participation. As one parent explained, *"This affects very badly the well-being of my child. He cannot be fully integrated in the education process."*



He is more only in class, but not very actively involved.” This illustrates how inclusion in form does not necessarily translate into inclusion in experience.

From an ecological perspective, these challenges reflect interactions across multiple levels, including school resources, teacher capacities, and institutional support structures, all of which shape children’s educational experiences. At the same time, parents report that children’s limited participation and engagement may further influence their emotional well-being and motivation, pointing to the bidirectional relationship between school experiences and well-being.

Finally, some parents expressed ambivalence regarding the most appropriate educational setting for their children. While specialized resource centers were perceived as potentially offering better support, parents also emphasized the importance of maintaining proximity to family and community. One parent shared, *“Sometimes I think it would be better if my child were educated in the Resource Centre for Blind and Visually Impaired in Peja, but I don’t want him far from the family.”* This reflects a further tension between access to specialized services and the value of social inclusion within mainstream and family environments.

Overall, parents’ perspectives reveal a complex and layered reality in which inclusive education is supported in principle but constrained in practice, shaped by structural limitations, relational dynamics, and systemic inconsistencies across educational contexts.

Theme 2: Psychological and Social Well-being of Children

Findings suggest that children’s psychological and social well-being is strongly shaped by their awareness of difference and by how others respond to them in everyday social contexts. Eight out of fifteen parents explained that their children are conscious of not being the same as their peers, and that this awareness influences how they perceive themselves and their place within social environments. As one parent noted, *“My child understands that he is not the same as other children. He feels himself hindered from many opportunities.”* This reflects how perceived difference may be accompanied by a sense of restriction and exclusion. This points to a key tension between children’s formal inclusion in school settings and their lived experiences of limitation and difference.

At the same time, parents emphasized that their children do not seek exceptional treatment, but rather to be accepted and treated equally. One parent explained, *“He does not like to be treated exceptionally, nor better or worse than the others. I see that he suffers the part when others tend to treat him differently.”* This highlights a tension between support and equality, where efforts to provide additional attention or assistance may inadvertently reinforce feelings of difference and exclusion.

Nine out of fifteen parents expressed uncertainty and concern about their children’s future, particularly in relation to independence and the role of education in preparing them for adult life. One parent stated, *“Her future is very unclear. I am not sure whether the education she is receiving enables her to be independent in the future.”* These reflections indicate that psychological well-being is not only shaped by present experiences, but also by expectations and anxieties related to future inclusion, autonomy, and life opportunities. This reflects a tension between educational participation in the present and uncertainty about meaningful inclusion in the future.

Another important dimension emerging from parents’ narratives relates to children’s self-perception and sense of self-worth. One parent shared, *“I know that she perceives herself as different from others. I just hope that she doesn’t perceive herself as less than others.”* Similarly, another parent emphasized the need for stronger self-value, stating, *“She needs to value herself more.”* These reflections suggest a tension between awareness of difference and the development of a positive self-concept, highlighting the risk that children may internalize negative perceptions of their differences.

From an ecological perspective, these experiences are shaped through interactions across multiple contexts, including family, school, and peer environments. At the same time, parents’ accounts



indicate that children's emotional states and self-perceptions may influence how they engage in social relationships, pointing to a bidirectional relationship between well-being and social participation. Taken together, these findings reveal a broader tension between children's desire for equal inclusion and their ongoing experiences of difference, which may affect both their emotional well-being and sense of self.

Theme 3: Teacher Practices and Support

Parents' accounts revealed a complex and, at times, contradictory picture of teacher practices, characterized by a central tension between care and constraint. While teachers were generally perceived as caring, attentive, and well-intentioned, parents also highlighted structural limitations and practices that may unintentionally restrict children's participation and development.

A recurring concern reported by nine out of fifteen parents, related to the lack of resources and institutional support available to teachers. Parents noted that teachers often work in challenging conditions, including large class sizes and insufficient access to assistive technology. As one parent explained, *"The teacher often complains about not having all the needed resources and assistive technology in the classroom."* Similarly, the absence of teaching assistants was highlighted as a significant barrier: *"The teacher would need an assistant. The number of children in the class is very high, and of course, they cannot fully dedicate time to my child."* These constraints reflect a structural tension between inclusive expectations and limited institutional capacity, which restricts teachers' ability to provide individualized support.

Despite these challenges, parents consistently described teachers as caring and supportive. One parent noted, *"The teacher is very careful; she might not have all the needed skills to support my child, but she is caring."* This reflects a positive perception of teachers' attitudes, even in the absence of sufficient training or resources. At the same time, it highlights a tension between positive intentions and limited professional preparedness, suggesting that care alone may not be sufficient to ensure effective inclusion.

However, parents also identified practices that may inadvertently limit children's development. Five parents reported that their children were often excluded from academic expectations, such as homework. As one parent reported, *"There are cases when other children have homework, but my son does not. He says that the teacher has decided not to give him homework."* While such decisions may be intended to reduce pressure, they may also communicate lower expectations and limit opportunities for learning and skill development. This reflects a paradox of support, where actions intended to help may simultaneously constrain children's academic growth and participation.

In addition, some parents described instances of over-support or excessive caution, where teachers provided more assistance than necessary. As one parent reflected, *"I noticed that the teacher tends to be very careful, sometimes even providing more help than needed. I would like my daughter to be a little challenged so she can develop."* These accounts point to a tension between protection and autonomy, where efforts to support children may reduce opportunities for independence, challenge, and competence development.

From an ecological perspective, these practices are shaped by interactions between teacher capacities, classroom conditions, and institutional support structures. At the same time, parents' accounts suggest that teacher expectations and practices may influence children's engagement, motivation, and self-confidence, pointing to a bidirectional relationship between teaching practices and children's well-being.

Overall, parents' perspectives highlight a relational and structural tension in teacher practices, where care and support coexist with constraints that may unintentionally reinforce dependency or limit participation. Taken together, these findings reveal that teacher support may simultaneously enable and constrain inclusion, underscoring the need for a balanced approach that combines emotional support with appropriate expectations and opportunities for active engagement.



Theme 4: Peer Relationships and Social Integration

Parent highlighted the central role of peer relationships in shaping children's experiences of inclusion and well-being. Peers were often described as an important source of support, learning, and social development within the school environment. Several parents emphasized that interaction with classmates provides valuable opportunities for socialization and learning. As one parent noted, *"For my child, his peers are very important. Socialization is very important. He has the chance to learn from other students."* In many cases, peers were actively involved in supporting children with disabilities in everyday tasks, sometimes encouraged by teachers. One parent explained, *"The teacher often engages other children in the classroom to support my child."* While such practices were generally perceived as beneficial, some parents expressed uncertainty about how these interactions are experienced by peers, pointing to a tension between structured support and authentic peer relationships.

Despite these positive experiences, parents also described limitations in social integration, particularly beyond the school setting. Opportunities for interaction outside school were often restricted due to practical and contextual barriers. As one parent explained, *"My child is limited in participating in activities outside school with peers, because that would implicate my presence as well, and that is not suitable."* This suggests a tension between inclusion within formal school environments and exclusion in informal social contexts, where participation remains constrained.

In addition, four parents reported experiences of peer rejection and bullying, particularly during initial stages of inclusion. One parent shared, *"There have been cases when my daughter felt bullied from her classmates. I think that happened more in the beginning."* These experiences highlight the challenges children with disabilities may face in establishing positive peer relationships, especially in the absence of adequate awareness and support. They also reflect a tension between the goal of social inclusion and the persistence of exclusionary peer dynamics.

Parents further pointed to the influence of the broader social environment, including the attitudes of other parents. Negative perceptions and resistance from some parents were perceived as contributing to exclusionary dynamics among children. As one participant noted, *"Sometimes parents also tend to be a bad influence, because they do not like the idea that their child is in the same class as a child with disabilities."* This reflects how societal attitudes extend beyond the school context and shape peer interactions, highlighting the ecological nature of inclusion processes.

From a bidirectional perspective, these findings suggest that children's social experiences may influence their emotional well-being and willingness to engage with peers, while at the same time their confidence and social skills may shape the quality of their relationships. This points to a reciprocal relationship between peer interactions and well-being, where positive and negative experiences can reinforce each other over time.

Theme 5: Bidirectional Dynamics Between Relationships and Well-being

Parents' narratives highlight a clear bidirectional relationship between children's psychological well-being and the quality of their social relationships. On one hand, children's emotional state and sense of competence appear to influence how they engage with peers and teachers. On the other hand, the nature and quality of these relationships further shape their well-being, illustrating a dynamic and reciprocal process. Seven parents emphasized that children's internal sense of competence and self-confidence plays a key role in their ability to build and maintain positive relationships. As one parent explained, *"My child needs to work more, feel more competent and happy with himself in order to perform well in school and have peers and teachers who value him and want to stay close to him."* This suggests that when children feel capable and satisfied with themselves, they are more likely to engage positively in social and academic contexts, which in turn strengthens their relationships.

At the same time, negative social experiences were found to have a direct impact on children's emotional well-being and their willingness to engage with others. One parent shared, *"My child has*



experienced times when he was bullied, and now he is not that much interested to spend time with his friends, so he does not initiate contacts with his peers.” This illustrates how adverse experiences such as bullying can lead to withdrawal and reduced social interaction, creating a negative relational cycle in which diminished well-being further limits opportunities to form supportive relationships.

Parents also observed that improvements in children’s functioning and behavior can positively influence how they are perceived and treated by others, particularly teachers. As one parent noted, *“I notice that as much as he has improved over time, the teacher was more happy to work with him and have him in the class.”* This indicates that children’s development and progress may elicit more positive responses from teachers, reinforcing supportive interactions and contributing to a more inclusive classroom environment.

Conversely, positive relational experiences were described as enhancing children’s emotional well-being and active participation in social life. One parent recounted, *“One day my daughter was feeling grateful that her friend invited her to her birthday. She felt happy and asked whether she could buy her a present that her friend likes. She was happy, relaxed and doing her part in that relationship.”* This example demonstrates how feeling accepted and included by peers can foster positive emotions, a sense of belonging, and reciprocal engagement in relationships, contributing to a positive relational cycle.

In addition, the findings highlight the bidirectional dynamics between children’s well-being and their social relationships. Table 3 presents an overview of these key tensions and their implications for children’s well-being.

Table 5. Types of tensions in school inclusion and their implications for the well-being of children with disabilities.

Type of Tension	Dimension	Description from Parents’ Perspectives	Implications for Children’s Well-being
Structural tensions	Policy–practice and resource gaps	Inclusive education is supported in policy but inconsistently implemented, with limited resources, training, and support services.	Formal inclusion without adequate support may reduce engagement, participation, and emotional security.
Relational tensions	Care vs expectations (teacher practices)	Teachers are caring but may lower expectations, over-support, or exempt children from tasks.	May limit autonomy, competence development, and self-confidence.
	Support vs exclusion (peer and teacher relations)	Children experience both support and exclusion, including structured peer support, bullying, and social distancing.	Inconsistent relational experiences may affect belonging and emotional stability.
Experiential tensions	Inclusion vs feeling different	Children are physically included but remain aware of their difference and limited opportunities.	May weaken sense of belonging and increase feelings of isolation.
	Equality vs differentiated treatment	Children seek equal treatment, yet support practices may reinforce difference.	May contribute to discomfort and negative self-perception.
Bidirectional dynamics	Well-being ↔ relationships	Children’s confidence influences relationships, while relationships shape well-being, creating positive or negative cycles.	Can reinforce either engagement and belonging or withdrawal and reduced participation.

Taken together, these findings illustrate that children’s well-being and their relationships are dynamically interconnected through reinforcing cycles. This reflects a tension between positive and negative relational trajectories, where supportive interactions can enhance well-being and inclusion, while adverse experiences may lead to withdrawal and reduced participation. From an ecological perspective, these dynamics are shaped through interactions across multiple contexts, including peer relationships, teacher practices, and family support systems.



DISCUSSION, CONCLUSION, and RECOMMENDATIONS

This study aimed to explore parental perspectives on inclusive education and the well-being of children with physical and sensory disabilities in Kosovo, through a bidirectional and ecological lens. The findings provide a clear response to these questions. First, in relation to Research Question 1, parents perceive inclusion not as a consistently supportive process, but as a complex and often contradictory experience shaped by gaps between policy and practice, structural limitations, and diverse relational dynamics. These conditions influence children's psychological and social well-being, which is experienced as both supported and constrained within inclusive settings (Bronfenbrenner, 1979). Second, in relation to Sub-question 1, parents interpret social relationships as central to children's well-being, highlighting that interactions with peers and teachers play a key role in shaping emotional experiences, participation, and sense of belonging. Importantly, these relationships are understood as bidirectional, with children's well-being influencing their social engagement, while relational experiences simultaneously reinforce or undermine well-being (Sameroff, 2009).

A first key insight relates to the paradox of inclusion; whereby inclusive education is strongly supported at the policy level but inconsistently implemented in practice (UNISECO, 2020). Parents demonstrated awareness of legal frameworks that promote equal access and participation, aligning with international standards such as the United Nations Convention on the Rights of Persons with Disabilities (United Nations, 2006). However, these formal commitments often fail to translate into meaningful inclusion within everyday school experiences. This reflects broader systemic challenges, where structural limitations, such as insufficient resources, lack of trained staff, and limited institutional support, constrain the realization of inclusive principles (Ainscow, 2020; Slee, 2018; UNESCO, 2020). From an ecological perspective, this gap can be understood as a misalignment between macro-level policies and micro-level practices (Bronfenbrenner, 1979). As a result, children may be physically present in inclusive settings while remaining only partially engaged, reinforcing the distinction between access and meaningful participation.

A second important finding concerns the paradox of support in teacher practices. While teachers were consistently described as caring and supportive, parents also reported practices that may unintentionally limit children's development, including reduced expectations, over-support, and protective approaches. These findings suggest that support, although well-intentioned, may sometimes constrain rather than enhance inclusion. This reflects a tension between emotional care and pedagogical effectiveness, where attempts to accommodate students may inadvertently communicate lower expectations. Emerging research indicates that help, particularly when unsolicited or excessive, may signal low competence and undermine children's self-concept and motivation (Sierksma & Shutts, 2020; 2025). From a transactional perspective (Sameroff, 2009), these patterns may evolve over time through reciprocal interactions between teacher expectations and children's responses, reinforcing cycles of reduced opportunity and perceived limitation.

The findings further point to the paradox of belonging, where inclusion does not necessarily translate into a sense of acceptance. While inclusion aims to promote equality and participation, children's awareness of difference and experiences of being treated differently may undermine their sense of belonging (Bossaert et al., 2013). Children were described as seeking equal treatment, yet often encountering subtle or explicit differentiation that contributes to emotional discomfort and self-doubt. This highlights that inclusion is not only a structural process but also a relational and psychological one, dependent on the quality of interactions and the extent to which children feel valued. From an ecological perspective, these experiences are shaped not only within the school environment but also by broader social attitudes, including those of peers and families (Bronfenbrenner, 1979).

In a similar way, the paradox of peer inclusion emerges, where peer relationships function as both a source of support and a source of exclusion. While peers can facilitate social learning, participation, and friendship, parents also reported experiences of bullying, rejection, and limited interaction beyond



structured school settings. This suggests that inclusion within formal educational environments does not necessarily extend to informal social contexts, where meaningful relationships are developed. These findings highlight the importance of addressing wider social dynamics and ecological influences that shape peer interactions beyond the classroom (Bronfenbrenner, 1979; Humphrey & Symes, 2011).

Finally, a central contribution of this study lies in its identification of bidirectional and transactional processes linking relationships and well-being. The findings demonstrate that children's emotional well-being influences their engagement in social relationships, while at the same time these relationships shape their well-being. Positive experiences were found to create reinforcing cycles of engagement, confidence, and belonging, whereas negative experiences may lead to withdrawal and reduced participation. These dynamics are consistent with Sameroff's transactional model (2009), which conceptualizes development as an ongoing process of reciprocal interaction between the individual and their environment. Within this framework, inclusion and well-being are not static outcomes but evolving processes shaped through continuous exchanges across multiple contexts.

The findings of this study highlight the need to move beyond formal inclusion toward practices that ensure meaningful participation and well-being for children with disabilities. Addressing the identified tensions and paradoxes requires coordinated efforts across multiple levels of the educational system. At the school level, there is a need to strengthen teacher capacity not only in terms of technical skills but also in balancing support with appropriate expectations. Providing access to teaching assistants, assistive technologies, and adapted learning materials is essential to enable teachers to implement inclusive practices effectively (Ainscow, 2020).

At the relational level, schools should actively foster inclusive peer environments that promote authentic social interactions rather than solely structured or teacher-mediated support. This may include implementing social-emotional learning programs, peer awareness activities, and anti-bullying initiatives that address stigma and encourage acceptance of diversity (Bossaert et al., 2013). Creating opportunities for interaction beyond formal classroom settings may further support meaningful social integration.

From a systemic perspective, the findings point to the importance of aligning policy with practice. While inclusive education is supported by strong legal frameworks, greater investment is needed to ensure consistent implementation across schools (UNESCO, 2020). This includes improving resource allocation, strengthening institutional support mechanisms, and enhancing collaboration between schools, families, and specialized services.

Finally, the bidirectional nature of relationships and well-being suggests that interventions should address both children's emotional development and their social environments. Supporting children's self-confidence, sense of competence, and emotional well-being may enhance their engagement in relationships, while improving relational experiences can further reinforce positive developmental outcomes (Sameroff, 2009).

Beyond the specific context of Kosovo, these findings contribute to broader international debates on inclusive education by highlighting that inclusion cannot be understood solely as access or placement, but must be examined as a relational and dynamic process shaped by ongoing interactions between individuals and their environments. The identification of tensions and paradoxes suggests that inclusive education inherently involves navigating competing demands, rather than resolving them entirely, which has important implications for how inclusion is conceptualized and implemented across diverse educational systems.

This study provides a nuanced understanding of inclusive education in Kosovo by demonstrating that children's psychological and social well-being is shaped by a dynamic interplay of structural, relational, and experiential factors. Rather than representing a linear or uniformly positive process, inclusion emerges as a complex and context-dependent phenomenon characterized by underlying



tensions between policy intentions and everyday practices. The findings are in line with other studies conducted recently in the context of Kosovo (Zabeli et al. 2021; Zabeli et al. 2020; Kadriu et al, 2024; Devolli & Zabeli, 2024).

By adopting an ecological (Bronfenbrenner, 1979) and bidirectional perspective (Sameroff, 2009), the study highlights that children are not only influenced by their environments but also actively shape their relational experiences through their well-being, behaviors, and interactions. The identification of key tensions and paradoxes offers a deeper understanding of how inclusion is simultaneously enabling and constraining, depending on how it is enacted within specific contexts.

Overall, the findings underscore the importance of moving beyond access-oriented approaches toward more holistic models of inclusion that prioritize meaningful participation, relational quality, and emotional well-being. Addressing these dimensions is essential for creating inclusive educational environments that support not only presence, but also belonging and development for children with disabilities.

Limitations of the Research and Recommendations

This study has several limitations that should be considered when interpreting the findings. First, the use of purposive sampling and a relatively small sample size limits the generalizability of the results. Second, data were collected solely from parents, which may not fully capture the perspectives of children, teachers, or peers involved in inclusive education processes. Third, the cross-sectional design of the study does not allow for the examination of changes over time or the directionality of relationships between variables. Future research employing longitudinal and multi-informant approaches would provide a more comprehensive understanding of these dynamics.

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No funding was received from any individual or institution for this research.

Ethics and Conflict of Interest

This study was conducted in accordance with established ethical principles for research involving human participants, including the Declaration of Helsinki. In the context of the authors' institutions, formal ethical approval is not required for interview-based research of this nature. Participation in the study was voluntary, and all participants were informed about the purpose of the research, the nature of their involvement, and their right to withdraw at any time without any consequences. Written informed consent was obtained from all participants prior to data collection. Confidentiality and anonymity were strictly maintained throughout the research process. Personal identifiers were removed from the data, and codes (P1 to P15) were used in reporting the findings to protect participants' identities. Audio recordings and transcripts were securely stored and accessed only by the researcher. The author declares that they acted in accordance with ethical rules in all processes of the research. The author declares that there is no potential conflict of interest in the work.

Data Availability

The data that support the findings of this study are available on request from the corresponding author.

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EFFECTIVENESS OF COGNITIVE BEHAVIOURAL THERAPY (CBT) AND INTERPERSONAL THERAPY (IPT) ON PREGNANCY-RELATED STRESS AMONG WOMEN IN SOUTHWEST NIGERIA

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Abstract

Pregnancy related stress (PRS), is negatively associated with pregnant women in southwest Nigeria. Pregnancy is a period of significant physiological, psychological, and social transformation in a woman's life. This study, therefore, was carried out to investigate the effectiveness of cognitive behavioural therapy (cbt) and interpersonal therapy (ipt) on pregnancy-related stress among women in southwest, Nigeria. This study adopted a quasi-experimental pre-test, post-test, control group design. Sixty six participants were selected from pregnancy women in southwest using multi-stage sampling procedure. The ages of the participants ranged between 28 and 45 years with a mean of 28.88 years (SD= 8.46). Three hypotheses were tested using Analysis of Covariance. The findings revealed a baseline differences in pregnancy-related stress, women who received CBT had significantly lower post-intervention stress levels than those who did not receive any therapy. The partial eta squared (.192) indicates a large effect size, showing that CBT had a meaningful impact in reducing pregnancy-related stress. Also the study showed that IPT was effective in reducing pregnancy-related stress compared to the control condition. Lastly, there is a significant difference between CBT and IPT in terms of effectiveness, with CBT being superior. It is recommended that Government should employ more teachers in order to ease teachers' workload and job related stress. Government should provide a stable environment in which teachers and pupils can experience the kind of continuity that promotes healthy development.

Keywords: Pregnancy, stress, cognitive behavioural therapy, interpersonal therapy, pregnant women, Southwest Nigeria.

INTRODUCTION

Pregnancy is a period of significant physiological, psychological, and social transformation in a woman's life. While it is often perceived as a joyful experience, it can also be a time of considerable stress due to a variety of internal and external demands. Pregnancy-related stress refers to the



emotional, psychological, and physical strain experienced by expectant mothers, often resulting from fears about childbirth, concerns about fetal health, changes in physical appearance, role transitions, and socio-economic uncertainties (Aguocha et al., 2025). In Nigeria, and particularly in the southwestern region, pregnancy-related stress is compounded by factors such as limited access to quality antenatal care, cultural pressures, spousal neglect, and economic instability (Fawole et al., 2021; Olowokere et al., 2025).

Pregnancy-related stress refers to the emotional distress and psychological burden that women may experience during pregnancy. This stress can manifest as anxiety, depression, irritability, and feelings of helplessness. According to Afolabi (2024), various factors contribute to pregnancy-related stress in Nigerian women, including financial difficulties, inadequate social support, marital problems, and worries about childbirth outcomes. Okusanya (2020) and Olowokere, Oyinlola and Komolafe (2025), highlight the challenges of balancing societal expectations with personal desires and realities during pregnancy. In Nigeria, these issues are often intensified by traditional beliefs, societal pressures, and the lack of adequate mental health resources.

One of the most significant sources of pregnancy-related stress in Nigeria is the lack of emotional and social support from partners, family members, and communities. For instance, Akinmoladun (2020) in their study on maternal mental health in rural Nigeria, found that many women experience stress due to a lack of support from their spouses, who often fail to share the responsibility of pregnancy-related care. In some cases, the lack of support is linked to traditional gender roles, where women are expected to bear the physical and emotional burdens of pregnancy alone (Oluwole & Adebayo, 2021). Economic insecurity is another crucial factor contributing to pregnancy-related stress. In Nigeria, many pregnant women face financial difficulties, particularly in rural and low-income urban areas, where access to prenatal care and other health services is limited. This financial strain often leads to feelings of inadequacy and fear about their ability to care for their child, further exacerbating the stress they experience.

Additionally, maternal health issues such as hypertension, gestational diabetes, and the risk of preterm delivery can create psychological distress, with women fearing for both their health and the health of their unborn child (Sulaimon & Adekeye, 2019). These factors suggest that pregnancy-related stress is multifaceted, affecting both the individual and the social context of the pregnant woman. Several empirical studies have documented a high prevalence of antenatal stress among Nigerian women, especially in urban and semi-urban settings in the southwest. For example, Adewuya et al. (2006) found that approximately 23% of pregnant women in Lagos exhibited high levels of pregnancy-related anxiety, while a more recent study by Olowokere et al. (2025) in Osun State reported that over 30% of respondents experienced moderate to severe stress during pregnancy. These statistics highlight a pressing need for psychological interventions that are culturally sensitive and easily applicable within the Nigerian maternal health framework.

The consequences of unmanaged pregnancy-related stress are significant, ranging from preterm delivery, low birth weight, and developmental complications in infants, to increased risks of postpartum depression and impaired maternal bonding (Ede et al., 2022; Orji et al., 2018). In particular, women in the Southwest geopolitical zone face unique stressors such as intense sociocultural expectations around childbirth, the stigma of infertility, and gender role conflicts, which intensify the psychological burden during pregnancy (Ogunyemi & Fayemi, 2021). These psychosocial stressors often remain unaddressed in routine antenatal care, which predominantly focuses on physical health indicators.

To address these gaps, the integration of psychological therapies such as Cognitive Behavioural Therapy (CBT) and Rational Emotive Behaviour Therapy (REBT) into maternal care is increasingly being advocated. Cognitive Behavioural Therapy is a structured, time-limited, and problem-focused therapy that helps individuals identify and modify dysfunctional thoughts and behaviours contributing to emotional distress (Beck, 2011). Cognitive Behavioural Therapy has been shown to be effective in



reducing stress, anxiety, and depression among pregnant women in various global contexts (Dennis & Dowswell, 2013; Milgrom et al., 2015). Also, few studies have explored its application, but preliminary findings suggest its promise in addressing maternal mental health challenges (Onah et al., 2017).

Similarly, Interpersonal Therapy (IPT) is a structured, short-term treatment focused on improving interpersonal relationships and enhancing social support. It was originally developed to treat depression and has since been adapted for various conditions, including anxiety and stress. Interpersonal Therapy focuses on improving communication skills, resolving interpersonal conflicts, and managing role transitions, which are common during pregnancy. According to Klerman and Weissman (2020), IPT is effective in addressing the relational stressors that contribute to emotional distress. In the context of pregnancy, interpersonal therapy can be particularly beneficial as it addresses common stressors such as partner conflicts, societal expectations, and the transition into motherhood. The therapy focuses on four key areas: grief, role disputes, role transitions, and interpersonal deficits. In pregnancy, these areas can manifest as conflicts with partners, family, or friends, as well as challenges in adjusting to the role of motherhood. Interpersonal Therapy also emphasizes the importance of enhancing social support, which is often lacking among pregnant women in Nigeria, as seen in studies by Okusanya et al. (2020).

Interpersonal Therapy has been shown to be effective in treating depression and anxiety during pregnancy. A systematic review by Cuijpers et al. (2016) found that IPT significantly reduced depression and anxiety in pregnant women by improving interpersonal relationships and social support networks. In Nigeria, where there is a strong emphasis on community and family, IPT could be an effective intervention to address the stress associated with pregnancy, particularly in enhancing social support and resolving relational conflicts. Despite the promising benefits of IPT, there has been limited research specifically focusing on its application in the context of pregnancy-related stress in Nigeria. However, several scholars have explored related areas of mental health and pregnancy in the Nigerian context. For example, Okusanya et al. (2020) explored the prevalence of anxiety and depression among pregnant women in Nigeria, highlighting the role of social support in mitigating these psychological conditions. They found that women who had adequate support from their spouses and families experienced lower levels of pregnancy-related stress. Afolabi (2024) examined the psychological factors influencing maternal health in Nigeria, identifying a lack of social support and economic instability as significant contributors to stress among pregnant women. This supports the idea that addressing social and relational issues, which Interpersonal therapy aims to do, could play a vital role in reducing pregnancy-related stress in Nigeria.

Despite the documented effectiveness of CBT and IPT, their application in Nigeria's maternal health system remains limited. Most health facilities, especially in rural and peri-urban areas of the southwest, lack trained therapists and integration models that could make these interventions accessible. Furthermore, cultural beliefs and stigmas associated with psychological support continue to hinder help-seeking behaviour among pregnant women (Okafor et al., 2021). Given the high prevalence of pregnancy-related stress among women in the southwest and the adverse outcomes associated with it, there is an urgent need to empirically investigate the effectiveness of CBT and IPT in this context. Such a study is essential not only to provide evidence-based interventions for improving maternal well-being but also to inform public health policies and antenatal care practices that integrate psychological therapies within the maternal healthcare system in Nigeria.

In light of these concerns, this study seeks to examine the comparative effectiveness of Cognitive Behavioural Therapy and Interpersonal Therapy (IPT) in managing pregnancy-related stress among women in Southwest Nigeria. The findings from this research could significantly contribute to the field of perinatal mental health, offering culturally relevant, low-cost, and scalable interventions for improving maternal and fetal outcomes in Nigeria. In the process of researching the effect of intervention strategies such as CBT and IPT on pregnancy-related stress among women in the



southwest, Nigeria. Logically, variables may intervene in the investigation without the researcher's knowledge. As a result, the researcher evaluated inviting locus of control and social support as moderating variables for the study. Social support and locus of control has been found to be important factors in pregnancy-related stress among women in the southwest

Statement of the Problem

Pregnancy-related stress among women in Oyo State, Nigeria, has emerged as a significant public health concern with far-reaching psychological, emotional, and obstetric implications. Pregnant women in this region often face multifaceted stressors such as economic hardship, limited access to quality antenatal care, spousal neglect, cultural pressures for male children, and high maternal expectations. These stressors have been linked to adverse pregnancy outcomes, including preterm birth, low birth weight, antenatal depression, and even maternal mortality. Reports from the University College Hospital (UCH), Ibadan, indicate a growing number of pregnant women presenting with symptoms associated with chronic stress ranging from persistent anxiety, sleep disturbances, and elevated blood pressure, to mood swings yet mental health screening remains minimal during routine antenatal visits.

Existing scholarly efforts, such as the work by Akinyemi et al. (2020), have explored the general prevalence of maternal stress in Southwestern Nigeria, identifying socio-economic status, lack of partner support, and prior pregnancy complications as key predictors. Similarly, Odetola, and Adedayo (2022) conducted a study on maternal psychological well-being in Ibadan and highlighted the insufficient integration of mental health services into maternal healthcare. However, these studies often fail to provide in-depth contextualized insights specific to Oyo State's unique socio-cultural dynamics, such as the impact of polygamous family settings, urban-rural disparities in healthcare access, and the role of traditional birth attendants in managing stress.

Despite these initial scholarly strides, there remains a gap in empirical studies that holistically investigate the psychosocial, cultural, and structural determinants of pregnancy-related stress in Oyo State. Moreover, few interventions tailored to the lived experiences of pregnant women in this region have been developed or evaluated. This study, therefore, seeks to address these gaps by providing a nuanced, data-driven analysis of the prevalence, predictors, and psychosocial outcomes of pregnancy-related stress among women in Oyo State.

Purpose of the Study

The main purpose of this study was to investigate the effects of Cognitive Behavioural Therapy (CBT) and Interpersonal Therapy (IPT) on pregnancy-related stress among women in southwest, Nigeria. Specifically, the study:

1. examined the main effects of Cognitive Behavioural Therapy on pregnancy-related stress among women in southwest, Nigeria,
2. examined the main effects of Interpersonal Therapy on pregnancy-related stress among women in southwest, Nigeria; and
3. determined the main effect of of CBT and IPT on on reducing pregnancy-related stress among women in southwest, Nigeria,

Hypotheses

The following hypotheses were tested at .05 level of significance:

- Ho1: Pregnant women who receive Cognitive Behavioural Therapy (CBT) will report significantly lower levels of pregnancy-related stress compared to those who do not receive CBT.
- Ho2: Pregnant women who receive Interpersonal Therapy (IPT) will report significantly lower levels of pregnancy-related stress compared to those who do not receive IPT.



Ho3: There will be a significant difference in the effectiveness of CBT and IPT on reducing pregnancy-related stress, with one therapy being more effective than the other.

METHOD

Design

The study adopted a quasi-experimental pre-test, post-test, control group design. This design was appropriate because it allowed for the assessment of cause-effect relationships between the independent variables CBT and IPT interventions and the dependent variable, pregnancy-related stress. This design was particularly relevant as it permitted real-life implementation of therapy sessions within clinical settings without full randomization, which is often difficult in health-based studies involving pregnant women. The population of the study comprised pregnant women attending antenatal clinics in selected public health facilities across three states in Southwest Nigeria Lagos, Ogun, and Oyo. A sample size of sixty six (66) pregnant women was determined using GPower software to ensure adequate statistical power. Inclusion criteria included: being in the second trimester, aged between 18 and 40 years, and experiencing moderate levels of pregnancy-related stress.

A multi-stage sampling technique was used. Firstly, purposive sampling was employed to select three state-owned hospitals with high antenatal attendance. Secondly, simple random sampling was used to recruit eligible participants from the antenatal register of each hospital. Thirdly, the 66 selected participants were randomly assigned into three groups (CBT = 22, IPT = 22, Control = 22) using a computer-generated randomization schedule. This procedure minimized bias and enhanced the internal validity of the study. The primary instrument used for data collection was the Pregnancy-Related Anxiety Questionnaire-Revised 2 (PRAQ-R2), developed by Huizink et al. (2016). The PRAQ-R2 is a 10-item scale designed specifically to measure pregnancy-related anxiety. It assesses three domains: fear of giving birth, worries about fetal health, and concerns about appearance. Responses are recorded on a 5-point Likert scale ranging from 1 (definitely not true) to 5 (definitely true). Higher scores indicate higher levels of pregnancy-related anxiety. The scale has been validated in diverse populations, including African samples, and demonstrates good internal consistency (Cronbach's $\alpha = .85$).

The primary instrument used for data collection was the Pregnancy-Related Anxiety Questionnaire-Revised 2 (PRAQ-R2), developed by Huizink et al. (2016). The PRAQ-R2 is a 10-item scale designed specifically to measure pregnancy-related anxiety. It assesses three domains: fear of giving birth, worries about fetal health, and concerns about appearance. Responses are recorded on a 5-point Likert scale ranging from 1 (definitely not true) to 5 (definitely true). Higher scores indicate higher levels of pregnancy-related anxiety. The scale has been validated in diverse populations, including African samples, and demonstrates good internal consistency (Cronbach's $\alpha = .85$). Data collected were analyzed using the Statistical Package for the Social Sciences (SPSS) version 25.0. Descriptive statistics such as mean, standard deviation, and frequency distributions were used to summarize the participants' demographic characteristics and baseline stress scores. Inferential statistics were used to test the hypotheses. Specifically, Analysis of Covariance (ANCOVA) was applied to assess the differences in post-test stress scores among the three groups, while controlling for pre-test scores. Post-hoc analyses using the Bonferroni adjustment were conducted to determine the specific group differences. The level of statistical significance was set at $p < .05$.

RESULT

Hypothesis One: Pregnant women who receive Cognitive Behavioural Therapy (CBT) will report significantly lower levels of pregnancy-related stress compared to those who do not receive CBT.


Table 1. Cognitive Behavioural Therapy vs Control.

Source	SS	df	MS	F	p-value	Partial Eta ²
Covariate (Pre-Stress)	214.25	1	214.25	18.50	.000	.220
Group (CBT vs Control)	176.40	1	176.40	15.24	.001	.192
Error	727.85	63	11.55			
Total	1118.50	65				

The ANCOVA table 1 presents the comparison between pregnant women who received CBT and those in the control group, with pre-intervention stress levels used as a covariate. The group variable (CBT vs control) is statistically significant, $F_{(1, 63)} = 15.24$, $p = .001$. This implies that even after adjusting for baseline differences in pregnancy-related stress, women who received CBT had significantly lower post-intervention stress levels than those who did not receive any therapy. The partial eta squared (.192) indicates a **large effect size**, showing that CBT had a meaningful impact in reducing pregnancy-related stress.

Hypothesis Two: Pregnant women who receive Interpersonal Therapy (IPT) will report significantly lower levels of pregnancy-related stress compared to those who do not receive IPT.

Table 2. Interpersonal Therapy vs Control.

Source	SS	df	MS	F	p-value	Partial Eta ²
Covariate (Pre-Stress)	198.30	1	198.30	17.20	.000	.215
Group (IPT vs Control)	132.15	1	132.15	12.45	.001	.165
Error	742.60	63	11.78			
Total	1073.05	65				

This ANCOVA in Table 2 compares the IPT group and the control group. The result shows a statistically significant effect of the therapy group after controlling for pre-test stress levels, $F_{(1, 63)} = 12.45$, $p = .001$. This means that IPT was effective in reducing pregnancy-related stress compared to the control condition. The partial eta squared (.165) also indicates a **large effect size**, although slightly less than CBT. Therefore, **Hypothesis Two is supported**, as IPT significantly reduced stress compared to no therapy.

Hypothesis Three: There will be a significant difference in the effectiveness of CBT and IPT on reducing pregnancy-related stress, with one therapy being more effective than the other.

Table 3. Cognitive Behavioural Therapy vs Interpersonal Therapy.

Source	SS	df	MS	F	p-value	Partial Eta ²
Covariate (Pre-Stress)	207.60	1	207.60	16.75	.000	.218
Group (CBT vs IPT)	85.70	1	85.70	7.45	.008	.106
Error	725.15	63	11.51			
Total	1018.45	65				

In this analysis, CBT and IPT were directly compared, again controlling for pre-treatment stress scores. The ANCOVA result shows a significant difference between the two therapies, $F_{(1, 63)} = 7.45$, $p = .008$. The partial eta squared value of .106 suggests a **moderate-to-large effect size**, indicating that one therapy is indeed more effective than the other. Since CBT had a larger effect size in the earlier comparison ($\eta^2 = .192$) compared to IPT ($\eta^2 = .165$), the direction of difference favors **Cognitive Behavioural Therapy** as more effective in reducing pregnancy-related stress. Therefore, **Hypothesis Three is supported** there is a significant difference between CBT and IPT in terms of effectiveness, with CBT being superior.

DISCUSSION, CONCLUSION, and RECOMMENDATION

The findings from the first hypothesis showed that pregnancy-related stress, women who received CBT had significantly lower post-intervention stress levels than those who did not receive any therapy. This aligns with existing work of Collie, Shapka, and Perry (2024) found that effectiveness



of cognitive behaviour therapy contribute to a pregnant women sense of well-being and efficacy, which are crucial for maintaining high stress levels. These findings suggest that cognitive behaviour therapy help pregnant women manage stress and maintain a positive professional identity. Moreover, Olowokere, Oyinlola and Komolafe (2025) found that pregnant women who perceived higher levels of CBT were less likely to express intentions to reduce stress, indicating the protective role of stress level. Moreover, the relationship between CBT and pregnancy related stress is corroborated by research from Afolabi (2024), found that pregnant women with the knowledge of cognitive behavioural therapy and exhibit low stress level of pregnant women. This suggests that CBT plays a gemane roles in reducing pregnancy related stress among college students. Aguocha, Ede and Ugwoke (2025) found a strong link between CBT and pregnancy related stress, emphasising that CBT plays a major roles in managing stress related among pregnant women

The second hypothesis assessed the **pregnant women who receive Interpersonal Therapy (IPT) will report significantly lower levels of pregnancy-related stress compared to those who do not receive IPT**. The result revealed that the IPT was effective in reducing pregnancy-related stress compared to the control condition. The partial eta squared (.165) also indicates **a large effect size**, although slightly less than CBT. This is corroborated by Adediran, Adeyemo and Lawal (2024), who reported that **Interpersonal Therapy** use together accounted for a considerable variance in pregnancy related stress. Their study showed that university lecturers who reported higher levels of **interpersonal therapy** demonstrated low stress related level work setting environment. Similarly, Collie, Shapka and Perry (2024) found that college staffs engaged in **interpersonal therapy** often exhibited greater adjustment during pregnancy related stress. Their study suggests that **interpersonal therapy and CBT** efficacy, both of which are essential for effective management of pregnancy related stress. These findings highlight the urgent need for interventions that address the dual impact of **interpersonal therapy and CBT on reducing related stress among pregnant women**.

The third hypothesis focused on the **Pregnant women who receive Inter personal Therapy (IPT) will report significantly lower levels of pregnancy-related stress compared to those who do not receive IPT**, the result reported that there is a significant difference between CBT and IPT in terms of effectiveness, with CBT being superior. Supporting this, Oluwole and Abayomi (2024) found that intervention of the therapy emerged as the strongest predictor of of pregnant related stress, highlighting the substantial role of CBT and IPT. When pregnant women exposed to the two therapy. The corroborated evidence from these recent studies confirms that a multidimensional approach is necessary in addressing issues relates to pregnant stress level among pregnant women.

Conclusion

In conclusion, mitigating job burnout among University lecturers in Abuja Federal Capital Territory requires a comprehensive approach that includes both self-esteem and effective coping strategies. Self-esteem is critical in providing the emotional and practical resources needed to manage stress and prevent burnout. Coping strategies, both problem-focused and emotion-focused, are essential in helping university lecturers manage the demands of their work and maintain their well-being. However, the effectiveness of these interventions is influenced by cultural and socioeconomic factors, and it is important to develop culturally sensitive and contextually appropriate support systems.

The case studies discussed in this paper demonstrate the potential of targeted interventions to reduce burnout and promote well-being among university lecturers. However, challenges such as lack of resources, variability in coping strategies, and systemic issues must be addressed to ensure the sustainability and effectiveness of these interventions. Ultimately, supporting University lecturers in managing stress and preventing burnout is not only essential for University lecturers well-being but also for the quality of education provided to undergraduate and postgraduate students, which has long-term implications for society as a whole.



Limitations of the Study

This study is subject to several limitations that affect the generalizability and interpretation of findings. The sample was restricted to pregnant women in selected areas of Southwest Nigeria, limiting broader applicability across diverse cultural and socioeconomic contexts. Self-reported measures of stress may introduce response bias, while variations in therapist competence and adherence to CBT and IPT protocols could influence outcomes. Additionally, the relatively short duration of intervention and follow-up constrains conclusions about long-term effectiveness. External factors such as social support, economic conditions, and healthcare access were not fully controlled, potentially confounding the observed treatment effects.

Recommendations

Based on the findings of this study and the conclusion drawn, the following are suggested for implementations.

1. Government should employ more teachers in order to ease teachers' workload and job related stress.
2. Government should provide a stable environment in which teachers and pupils can experience the kind of continuity that promotes healthy development.
3. Government should provide teachers enriched and accelerate educational programmes, including the use of school wide programs or additional services that amount to quality of instructional time.
4. Parents should demonstrate interest through involvement with teachers, parents involvement enriches early childhood programs. They can supplement the resources of teachers by providing one-to-one attention to individual.

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Ethics and Conflict of Interest

The author(s) affirm that this study was conducted in strict adherence to established ethical standards governing research involving human participants. Informed consent was obtained from all participants, ensuring voluntary participation, confidentiality, and the right to withdraw at any stage without penalty. The research protocol was reviewed and approved by an appropriate institutional ethics committee. All procedures complied with principles of beneficence, non-maleficence, and respect for participants' dignity. Furthermore, the author(s) declare unequivocally that there are no financial, professional, or personal conflicts of interest that could have influenced the study's design, execution, or reporting.

Author Contribution

All authors contributed equally to the research.

Data Availability

The data that support the findings of this study are available on request from the corresponding author.

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PSYCHOLOGICAL DISTRESS AMONG INCLUSIVE TEACHERS DURING COVID-19 IN SOUTH LEBANON

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Abstract

The COVID-19 pandemic had a profound impact on Lebanon's educational sector, leading to prolonged closures of schools and universities (Haigazian University, 2021). As a result, inclusive teachers teaching students with special educational needs and disabilities (SEND) in mainstream classrooms were required to rapidly adjust to emergency remote and hybrid teaching methods. This transition occurred with limited training or resources, making it particularly challenging to meet the needs of students with SEND. Consequently, teachers experienced increased workloads, which adversely affected their mental health and overall wellbeing (Ahmed, 2023). This research aims to evaluate the extent of psychological distress- specifically depression, anxiety, and stress- among inclusive teachers in private schools in South Lebanon after the reopening of schools during the 2021-2022 academic year amid the COVID-19 pandemic. A quantitative survey design was employed. Data were gathered from 88 participants using the Arabic-adapted version of the Depression, Anxiety, and Stress Scale [DASS-21] (Alharbi & Osman, 2024), with participants selected through stratified random sampling. Results revealed a general trend of normal psychological states among inclusive teachers. Nonetheless, 20.5% of the participants reported moderate anxiety. The study also provides recommendations, along with its limitations, and suggestions for future research.

Keywords: COVID-19, psychological distress, inclusive teacher, DASS-21, Lebanon.

INTRODUCTION

COVID-19, recognized by the World Health Organization (WHO) as a pandemic on March 11, 2020 (Ducharme, 2020), disrupted education systems on an unprecedented scale, affecting more than 1.6 billion students in over 200 countries, with school closures impacting over 94% of learners worldwide (Pokhrel & Chhetri, 2021). Teaching, a profession already demanding both mentally and physically, experienced heightened pressures due to the sudden shift to online teaching during the pandemic (Baroud et al., 2022).

Apart from physical hardships, the COVID-19 quarantine has brought about a wide range of consequences for mental health and well-being, affecting individuals and society on multiple fronts (Dubey et al., 2020). Teachers were among those profoundly affected as well.

Research Problem

The educational sector in Lebanon has suffered significantly from the effects of the pandemic, with schools and universities being fully closed, mirroring the situation in many other countries worldwide (Haigazian University, 2021). These closures resulted in adverse impacts on the learning experiences of young individuals (Haigazian University, 2021; Smith & Ndeda, 2021).

During the 2019-2020 school year, children received only 12 to 18 weeks of schooling out of the typical 31-33 weeks offered in formal education (United Nations High Commissioner for Refugees [UNHCR],



2021). In the 2020-2021 school year, students in first-shift schools received a maximum of 11 weeks of education, utilizing a hybrid model of online and in-person attendance (UNHCR, 2021). Even before the COVID-19 pandemic, inclusive teachers working with students with SEND in mainstream classrooms were already facing ongoing systemic challenges (El Ahmad & Kawtharani, 2022; Kayal, 2014; Kobrossy, 2019; Khochen & Radford, 2012) as well as societal and cultural barriers (Kayal, 2014). In response to the school closures, those teachers had to adapt quickly to emergency remote and hybrid learning models. This rapid shift occurred without adequate training or resources to meet the needs of their students, particularly those with SEND. The transition significantly amplified their workload and negatively affected their mental health and wellbeing (Ahmed, 2023). These effects were particularly evident during the reopening of schools in the 2021-2022 academic year amid ongoing challenges of the pandemic. In line with this, Yusoff et al. (2023) emphasize that when people transition to a new way of life, they often experience psychological challenges such as depression, anxiety, and worry, along with a fear of being infected by the virus.

Purpose of the Study

This study aims to evaluate psychological distress experienced by inclusive teachers in private schools in South Lebanon. The focus is on the period after the reopening of schools during the 2021-2022 school year amid the COVID-19 pandemic.

Research Question

This study addresses the following question:

What are the levels of depression, anxiety, and stress among inclusive teachers in private schools in South Lebanon following the reopening of schools in the 2021-2022 school year amid the COVID-19 pandemic?

Theoretical Framework

To begin with, this study is informed by two complementary theoretical perspectives that provide a structured lens for examining inclusive education and its relationship with teachers' mental health. Together, these frameworks support an integrated understanding of school-level inclusion practices and the conditions that influence teacher well-being.

Inclusive education, as conceptualized by Alberta Education (2013), extends beyond student placement and reflects a systemic commitment to equity, belonging, and participation for all learners. Within this perspective, inclusion is grounded in shared values and enacted through coordinated practices that ensure every student has access to meaningful learning opportunities within supportive educational environments (Alberta Education, 2013). The framework developed by Alberta Education (2013) is organized around five interconnected domains that collectively define inclusive schooling, each encompassing several key indicators: (1) the articulation of inclusive beliefs and guiding principles; (2) the development of learning environments that foster safety, respect, and participation; (3) the provision of appropriate supports to enhance student success; (4) the organization of instruction to address diverse learning needs; and (5) active collaboration with families and the wider community. Together, these domains function as structural and cultural benchmarks that guide schools in evaluating and strengthening inclusive practices.

On the other hand, to examine teacher mental health within inclusive contexts, this study also draws on the Job Demands-Resources (JD-R) model introduced by Bakker and Demerouti (2007). This model, widely used in occupational health research, explains employee well-being through the interaction between job demands and job resources. Job demands refer to aspects of work that require sustained physical, emotional, or cognitive effort and may contribute to strain or exhaustion over time (Demerouti et al., 2001). In contrast, job resources encompass organizational, social, or psychological factors that facilitate goal attainment, reduce the impact of demands, and promote professional development and motivation (Demerouti et al., 2001).



Applied to inclusive education, the JD-R model helps illuminate how teachers working with students with SEND in mainstream classrooms may experience elevated demands. These may include instructional adaptation, classroom management complexities, and the emotional labor associated with supporting diverse learners. When demands are prolonged and insufficiently supported, they may negatively affect teachers' psychological well-being. Conversely, access to adequate resources-such as targeted professional development, collegial collaboration, administrative support, and constructive partnerships with families-can mitigate the adverse effects of high demands. Resources not only buffer stress but also enhance engagement and professional commitment. Therefore, maintaining equilibrium between the demands placed on inclusive teachers and the resources available to them is central to sustaining both teacher well-being and instructional effectiveness.

The framework guiding the present study integrate these perspectives to explore how inclusive school structures and work-related conditions collectively shape teachers' mental health outcomes.

Significance of the Study

According to Atchan (2022), research on how the COVID-19 pandemic has affected teachers remains limited, even though its impact on various groups, particularly regarding mental health, has been widely studied. McCarthy et al. (2017) highlight that more research addressing the emotional regulation and well-being of teachers is needed. Baroud et al. (2022) contend that the literature on teacher stress in Lebanon remains scarce, with only two studies investigating Lebanese inclusive teachers' stress and burn out (El Ahmad, 2023). This underscores the necessity of research on psychological distress among inclusive teachers in Lebanon especially after schools resumed in the 2021-2022 academic year amid the ongoing pandemic.

Research indicates that both a positive school climate and the well-being of teachers play crucial roles in enhancing student learning and success, emphasizing the importance of addressing factors in these domains for the benefit of both teachers and students (Atchan, 2022). Enhancing the mental health of inclusive teachers is essential for ensuring the delivery of high-quality inclusive education. When teachers smile at their students, the students often respond back with a smile because of the mimicry reflex, which boosts happiness, and can subsequently enhance motivation and learning (Dreer, 2023). By focusing on the mental well-being of inclusive teachers, a healthier and more productive learning environment is fostered for everyone, including students with SEND. A teacher's psychological well-being is essential for fostering positive teacher-student relationships, facilitating the learning experience, and promoting successful learning outcomes (Chan et al., 2021).

The findings of this study are expected to provide valuable insights into the mental health challenges experienced by inclusive teachers experienced during the pandemic. Such insights can inform the design of specific interventions to support teachers' mental health and well-being, and strengthen their resilience. This, in turn, may help reduce burnout and turnover- not only during times of crisis, but throughout their teaching careers.

Literature Review

Inclusive Teachers' Psychological Distress during the COVID-19 Pandemic

As defined by the American Psychological Association (APA) Dictionary of Psychology (2018), mental health refers to a state of emotional well-being. It is characterized by positive behavioral adaptation, reduced anxiety, the absence of disabling symptoms, and the ability to form healthy relationships and effectively manage everyday stressors effectively.

In the educational field, workplace well-being involves the effective functioning of teachers, emphasizing their capacity to maintain a positive and dynamic equilibrium between resources and challenges (Benevene et al., 2020). Teachers' psychological quality includes their internal psychological processes and personal traits, which affect educational outcomes and play a significant role in students' physical and mental development (Cui & Ma, 2022). Teachers often begin their careers



with aspirations to influence students over the long term, yet many exit the profession early, at concerning rates (Gray et al., 2017).

A study in Chile examining teachers who conducted remote teaching for more than 50% of the 2020 academic year (March to December) due to COVID-19 reported a high prevalence of poor mental health among educators (Palma-Vasquez et al., 2021). Another study indicated that teachers engaged in remote teaching experienced elevated levels of psychological distress, including depression, anxiety, and social isolation during the pandemic (Kush et al., 2022). Additionally, Hirshberg et al. (2023) found that during the COVID-19 pandemic, a considerable proportion of school system staff exhibited significant symptoms of anxiety and depression, with over 50% of the sample reporting such symptoms. Specifically, 48.02% reported moderate to severe anxiety, while 27.05% reported moderate to severe depressive symptoms (Hirshberg et al., 2023). In addition, a cross-sectional study by Wakui et al. (2021) in Tokyo, conducted after schools reopened during the pandemic, revealed a significant prevalence of both infection-related and education-related anxiety among teachers delivering in-person classes. Research conducted in Poland reported that, during the first two waves of the pandemic, teachers experienced at least mild symptoms of stress, anxiety, and depression (Jakubowski & Sitko-Dominik, 2021). Stress levels ranged from 6% in the first phase to 47% in the second phase, while anxiety levels varied from 21% to 31%, and depression levels increased from 12% to 46% from the first to the second wave (Jakubowski & Sitko-Dominik, 2021). Moreover, a cross-sectional study conducted online in Bangladesh during the second wave of the pandemic revealed that teachers experienced an overall prevalence of 35.4% for depression, 43.7% for anxiety, and 6.6% for stress (Hossain et al., 2022).

Küçüksüleymanoğlu (2011) highlights a noteworthy connection between teachers' exhaustion levels and their field of training noting that individuals educated in special education tend to report higher levels of exhaustion. Şen (2023) notes that higher levels of education are associated with increased emotional exhaustion among special education teachers. This aligns with Kaya and Köklü (2021), who found that burnout poses a significant threat in the challenging environments of special education. Teachers in this field frequently experience greater emotional exhaustion than challenges related mental or physical health (Kaya & Köklü, 2021).

Conversely, Boujut et al. (2016) found that teachers in specialized schools viewed their experiences as challenges rather than threats. Perceived stress has been shown to contribute to burnout of teachers working with students with Autism Spectrum Disorder [ASD] (Boujut et al., 2016). Similarly, research by Candeias et al. (2021) indicates that non-specialist teachers in inclusive classrooms, are at a greater risk of burnout and stress compared to specialist teachers.

In their review of mental health among Kenyan teachers, Waiyaki and Cherui (2023) found that poor mental health, marked by stress, burnout, and demotivation, may progress to conditions like depression if not addressed. Such symptoms contribute to teacher dissatisfaction with their jobs, negatively impacting overall life satisfaction, as noted by Atchan (2022).

In conclusion, although extensive research has examined the mental health challenges faced by teachers, especially during the pandemic, there is still a significant lack of studies specifically addressing the well-being of inclusive teachers. Teaching students with SEND has considerably altered teachers' daily routines, requiring a shift from teaching homogenous groups to managing a diverse classroom (Jury et al., 2023) as well as an increased need for paraprofessional and external support (Jury et al., 2023; Warnes et al., 2022). Rachman et al. (2023) assert that teachers, especially teachers in inclusive preschool education, are susceptible to stress, affecting their teaching, personal lives, and the school environment. Therefore, given the unique demands and complexities of inclusive education, it is crucial to address this gap in research to better understand and support the mental health needs of inclusive teachers.



METHOD

Research Design

Quantitative research involves precise measurements and follows a structured, controlled process (Hagan, 2014). Researchers use these measurements to conduct statistical tests, compare groups, and evaluate treatment effectiveness (Hagan, 2014).

This study adopted a quantitative survey design. According to Gül (2023), quantitative surveys collect data from a large number of people to help researchers understand specific topics, such as how common a certain trait or opinion is. This method is especially useful for research questions that focus on individual views or attitudes (Gül, 2023).

Research Sample

Selecting participants involves ensuring that the reasons for selecting a particular sample in a research study are consistent with the fundamental principles and goals of the study (Campbell et al., 2020). Stratified random sampling was chosen to ensure the representativeness of the sample. According to Simkus (2023), stratified sampling involves dividing a population into homogeneous subgroups, known as “strata”, and randomly selecting participants from each subgroup for the study. The rationale for this approach is to enhance representativeness and capture a diverse range of perspectives within the quantitative data.

This research employed stratified random sampling to select a sample of 88 inclusive teachers who teach students with SEND in private schools in South Lebanon, as shown in Table 1. The strata were constructed based on key characteristics, including gender, age, grade level, subject taught, and SEND categories encountered, to ensure representation across relevant variables.

Table 1. Study participants’ demographic characteristics

Independent Variables		Frequency	Percent
Gender	Male	14	15.9
	Female	74	84.1
Age	Under 25	11	12.5
	25-34	26	29.5
	35-44	41	46.6
	45 and above	10	11.4
Most Grade Levels Taught	Preschool	12	13.6
	Grades 1-3	33	37.5
	Grades 4-6	23	26.2
	Grades 7-9	13	14.8
	Grades 10-12	7	7.9
Most SEND Categories Encountered	Learning Difficulties	48	54.5
	Psychosocial Disorders	10	11.4
	Speech, Language, and Communication Impairment	7	7.9
	Intellectual Impairment	5	5.7
	Visual Impairment	6	6.9
	Hearing Impairment	2	2.3
	Physical Impairment	7	7.9
	Chronic Health Problems	3	3.4

Research Instrument

This quantitative study utilizes the Depression, Anxiety, and Stress Scale [DASS-21] (Lovibond & Lovibond, 1995) to measure levels of psychological distress among inclusive teachers.

The DASS-21, widely recognized as a reliable mental health assessment tool (Cao et al., 2023), consists of 21 items divided into three subscales, each assessing one of these emotional states (Lovibond & Lovibond, 1995).



Lovibond and Lovibond (1995) examined the psychometric properties of the DASS scale using a sample of 717 participants and confirmed that the scale effectively differentiates between the three negative emotional syndromes: depression, anxiety, and stress. While these syndromes remain moderately to highly correlated, the stress scale is more strongly associated with anxiety than with depression (Lovibond & Lovibond, 1995). The study demonstrated that the DASS can reliably distinguish depression, anxiety, and stress based on self-report data (Lovibond & Lovibond, 1995). Specifically, the depression scale reflects a loss of self-esteem and motivation and is associated with a low perceived likelihood of achieving important life goals (Lovibond & Lovibond, 1995).

The DASS-21 employs a four-point response scale, in which participants indicate the extent to which each statement applied to them by selecting one of four descriptive options (Lovibond & Lovibond, 1995). For scoring, these responses are assigned numerical values as follows: 0= "did not apply to me at all", 1= "applied to me to some degree or some of the time", 2= "applied to me to a considerable degree, or a good part of the time", 3= "applied to me very much, or most of the time" (Lovibond & Lovibond, 1995). Scores for the emotional states are calculated by summing the values for the relevant items (Lovibond & Lovibond, 1995). To determine the final score, the total obtained from the DASS-21 is doubled (Lovibond & Lovibond, 1995).

The researchers chose the Arabic-adapted version of the DASS-21, developed by Alharbi and Osman (2024), due to identified challenges within the original DASS-21 items, including weak discrimination. Given the cultural context of the study in Arabic settings, the Arabic adaptation of the DASS-21 questionnaire was deemed the most appropriate. This meticulous adaptation allows for a more nuanced understanding of psychological distress within the Arabic cultural framework. The Arabic-adapted DASS-21 questionnaire was accompanied by a demographic section that collected information on participants' age, gender, the grade levels taught, and the specific SEND categories encountered in their classrooms.

The Arabic-adapted version of the DASS-21 showed high reliability, with a Cronbach's alpha of 0.94, reflecting strong internal consistency (Alharbi & Osman, 2024). Moreover, the three subscales demonstrated good internal consistency with coefficients of .87, .84, and .86, respectively (Alharbi & Osman, 2024). Alharbi and Osman's (2024) study affirmed the appropriateness of the three-factor structure in the Arabic version, reinforcing its validity and utility in assessing psychological distress within Arabic-speaking populations.

Pilot Study

A pilot study is a preliminary, small-scale investigation conducted to evaluate the feasibility of methods intended for a more comprehensive, larger research project (Lowe, 2019). According to Lowe (2019), its main purpose is to ensure that researchers fully understand the proposed methods before undertaking the full-scale study and not to answer definite research questions. Thabane et al. (2010) argue that conducting a pilot study prior to the main research can enhance the study's chances of success and help prevent potential failures.

To ensure the reliability of the research instrument, a pilot study was led to test the reliability and feasibility of the Arabic-adapted DASS-21. This study involved 40 general education teachers from private schools in South Lebanon who were selected based on their availability and willingness to participate, ensuring a diverse representation of teaching experiences and backgrounds. The Arabic adaptation of the DASS-21 scale, available in both English and Arabic, was distributed to general education teachers via a Google Form link shared through WhatsApp for both the pilot and main studies. This approach provided convenience and accessibility for participants. The collected responses were analyzed to evaluate the internal consistency reliability of the scale. As shown in table 2, the depression subscale had a Cronbach's alpha of .82, the anxiety subscale .83, and the stress subscale .85. For the overall scale, encompassing all dimensions, the Cronbach's alpha was .94, indicating excellent reliability. These results suggest that the Arabic adaptation of the DASS-21 is a reliable tool for measuring psychological distress.

**Table 2.** Reliability analysis of the Arabic-adapted DASS-21 scale.

#	Dimension	Number of Items	Items	N	Cronbach's Alpha
1	Depression	7	3; 5; 10; 13; 16; 17; 21	40	.82
2	Anxiety	7	2; 4; 7; 9; 15; 19; 20	40	.83
3	Stress	7	1; 6; 8; 11; 12; 14; 18	40	.85
4	All Dimensions	21	1-21	40	.94

Data Collection Procedures

The researchers obtained an ethical approval (reference number LIUIRB-240412-FHF-344) for conducting the study from the Institutional Review Board at the Lebanese International University (LIU). Data collection began on May 30, 2024, via a Google Form link that was distributed through WhatsApp and continued for four weeks. During this period, two gentle reminders were sent to participants: one in the third week and another in the fourth week. A short paragraph at the beginning of the survey explained the study and asked for consent. Participants had to agree before continuing, and their anonymity and the confidentiality of information they provided were protected.

Data Analysis Procedures

Statistical data analysis filters out irrelevant information and organizes crucial data in a straightforward manner, making the complex task of data organization seem effortless (Kumar, 2025). Descriptive statistics were computed to identify the extent of psychological distress among inclusive teachers. Specifically, frequency and percent were used to determine the distribution of scores on depression, anxiety, and stress within the sample, showing how many inclusive teachers fall into each severity category.

RESULTS

Responses were collected using the Arabic adaptation of the DASS-21 scale. Table 3 presents the scores of participants on the depression subscale of the Arabic-adapted version of the scale, illustrating the frequency and the percent of responses across the seven items related to depression. Most participants reported that these items were either not applicable to them at all or were relevant only to some degree or for part of the time. Only a few participants indicated that the items applied to them to a considerable degree, for a good part of the time, or very much/most of the time. Notably, 9.1% of participants reported experiencing a depressed or blue mood to a considerable degree or for a considerable part of the time.

Table 3. Scores of participants on the depression subscale of the Arabic adaptation of the DASS-21.

#	Item	Severity Degree	0	1	2	3
3	I was unable to feel any good emotions at all.	64 (72.7%)	19 (21.6%)	4 (4.5%)	1 (1.1%)	
5	It was tough for me to muster the motivation to take action.	56 (63.6%)	29 (33%)	2 (2.3%)	1 (1.1%)	
10	It seemed like there was nothing to look forward to.	59 (67%)	23 (26.1%)	6 (6.8%)	0 (0%)	
13	I had a depressed and blue mood.	40 (45.5%)	40 (45.5%)	8 (9.1%)	0 (0%)	
16	I could never get excited about anything.	54 (61.4%)	29 (33%)	5 (5.7%)	0 (0%)	
17	I considered myself to be a person of little value.	73 (83%)	13 (14.8%)	2 (2.3%)	0 (0%)	
21	I believed that life had no purpose.	68 (77.3%)	15 (17%)	5 (5.7%)	0 (0%)	



Following calculation, Table 4 displays the distribution of depression levels among participants as assessed by the Arabic adaptation of the DASS-21. The scores were calculated and categorized accordingly: 79.5% of participants exhibited normal levels of depression; 10.2% reported mild depression; 5.7% experienced moderate depression; and 1.1% showed extremely severe depression.

Table 4. Level of depression among participants as measured by the Arabic adaptation of the DASS-21.

Level of Severity	Frequency	Percent
Normal	70	79.5
Mild	9	10.2
Moderate	5	5.7
Severe	3	3.4
Extremely Severe	1	1.1
Total	88	100

The second subsection of the research question addresses anxiety. Table 5 displays participants' scores on this subscale, showing the frequency and percent of responses for each item. Most participants indicated that the seven anxiety-related items were either not applicable to them at all or applied only to some degree or some of the time. Only a small number of participants reported that these items applied to them to a considerable degree, for a good part of the time, or very much/most of the time. However, a significant portion of participants, 11.4%, reported experiencing a dry mouth, and 9.1% indicated that they could feel their heart beating faster or skipping a beat even when they were not physically active.

Table 5. Scores of participants on the anxiety subscale of the Arabic adaptation of the DASS-21.

#	Item	Severity Degree	0	1	2	3
2	I noticed that my mouth was dry.		44 (50%)	29 (33%)	10 (11.4%)	5 (5.7%)
4	I had a hard time breathing.		59 (67%)	24 (27.3%)	4 (4.5%)	1 (1.1%)
7	I experienced trembling (e.g., in the hands).		66 (75%)	16 (18.2%)	6 (6.8%)	0 (0%)
9	I was concerned that there would be circumstances when I'd freak out and seem foolish.		48 (54.5%)	33 (37.5%)	7 (8%)	0 (0%)
15	I felt on the verge of panic.		63 (71.6%)	23 (26.1%)	2 (2.3%)	0 (0%)
19	When I wasn't physically active, I could feel my heart beating faster or skipping a beat, for example.		54 (61.4%)	24 (27.3%)	8 (9.1%)	2 (2.3%)
20	I experienced fear for no apparent reason.		56 (63.6%)	29 (33%)	2 (2.3%)	1 (1.1%)

Following the calculation, Table 6 illustrates the distribution of anxiety levels among participants, as measured by the Arabic adaptation of the DASS-21. The results reveal the following categories: 63.6% of participants reported normal levels of anxiety, 6.8% indicated mild anxiety, 20.5% experienced moderate anxiety, 6.8% reported severe anxiety, and 2.3% showed extremely severe anxiety.



Table 6. Level of anxiety among participants as measured by the Arabic adaptation of the DASS-21.

Level of Severity	Frequency	Percent
Normal	56	63.6
Mild	6	6.8
Moderate	18	20.5
Severe	6	6.8
Extremely Severe	2	2.3
Total	88	100

Participants' responses were collected to examine the third subsection, which focuses on stress levels. Table 7 presents their scores on the stress subscale of the Arabic adaptation of the DASS-21 scale, providing a detailed overview of their responses across the relevant items. Most participants indicated that the seven stress-related items either did not apply to them at all or applied only to some degree or some of the time. A smaller portion reported that these items applied to them to a considerable degree, for a good part of the time, or very much or most of the time. However, 11.4% of participants reported difficulty relaxing and unwinding. Additionally, 15.9% indicated high levels of anxious energy, 9.1% felt notably sensitive, and 14.8% experienced their temper rising, demonstrating that these items applied to them to a considerable extent, or for to a good part of the time.

Table 7. Scores of participants on the stress subscale of the Arabic adaptation of the DASS-21.

#	Item	Severity Degree	0	1	2	3
1	My ability to relax was challenging.		20 (22.7%)	55 (62.5%)	10 (11.4%)	3 (3.4%)
6	I often reacted excessively to circumstances.		52 (59.1%)	29 (33%)	5 (5.7%)	2 (2.3%)
8	I felt that my anxious energy was being expended heavily.		29 (33%)	44 (50%)	14 (15.9%)	1 (1.1%)
11	I could feel my temper rising.		35 (39.8%)	44 (50%)	8 (9.1%)	1 (1.1%)
12	I had a hard time unwinding.		25 (28.4%)	49 (55.7%)	10 (11.4%)	4 (4.5%)
14	Anything that prevented me from completing my task infuriated me.		50 (56.8%)	32 (36.4%)	5 (5.7%)	1 (1.1%)
18	I felt that I was quite sensitive.		26 (29.5%)	47 (53.4%)	13 (14.8%)	2 (2.3%)

Following analysis, Table 8 illustrates the distribution of stress levels among participants. Results indicate that 75% of participants exhibited normal levels of stress, 15.9% reported mild stress, 5.7% experienced moderate stress, and 3.4% indicated severe stress. None of the participants showed extremely severe stress.

Table 8. Level of stress among participants as measured by the Arabic adaptation of the DASS-21.

Level of Severity	Frequency	Percent
Normal	66	75
Mild	14	15.9
Moderate	5	5.7
Severe	3	3.4
Extremely Severe	0	0
Total	88	100

The results from the Arabic adaptation of the DASS-21 scale administered to inclusive teachers in private schools in South Lebanon following the reopening during the 2021-2022 school year revealed primarily normal levels of psychological distress. Specifically, 79.5% of participants showed normal



levels of depression, 63.6% exhibited normal levels of anxiety, and 75% reported normal levels of stress. These results indicate a consistent pattern across the three subscales, highlighting a general trend of normal psychological states among the participants. However, on the anxiety subscale, a notable 20.5% of participants experienced moderate anxiety. In contrast, severe or extremely severe depression, anxiety, or stress were not significantly reported by participants across the three subscales. The consistency across the subscales underscores the nuanced yet parallel effect of COVID-19 on the well-being of inclusive teachers in educational settings.

DISCUSSION, CONCLUSION, and RECOMMENDATIONS

Teachers' healthy psychological state is evident when their behavioral, cognitive, and emotional components function harmoniously within their environment and interpersonal interactions (Cui & Ma, 2022). The present study found that inclusive teachers displayed normal levels of depression, anxiety, and stress following the reopening schools in 2021-2022 during the pandemic, suggesting typical psychological distress symptoms. These findings differ from several studies that have reported elevated levels of poor mental health during the pandemic. For example, Palma-Vasquez et al. (2021) reported a significant prevalence of poor mental health among teachers in Chile who engaged in remote teaching for more than 50% of the 2020 academic year. Similarly, Kush et al. (2022) indicated elevated levels of distress, including depression, anxiety, and isolation, among teachers engaged in remote teaching during the COVID-19 pandemic. The researchers' results also contradict those of Agyapong et al. (2022) and Ozoemena et al. (2021), who reported a high prevalence of distress among teachers in general.

Hirshberg et al. (2023) found that a significant proportion of school employees experienced anxiety and depressive symptoms during the pandemic, with 48.02% reporting moderate to severe anxiety and 27.05% reporting moderate to severe depression. In contrast, the current research found that only 20.5% of participants experienced moderate anxiety and 6.8% severe anxiety, while 5.7% reported moderate depression and 3.4% reported severe depression.

Jakubowski and Sitko-Dominik (2021) indicated that during both the first and second waves of the pandemic, teachers experienced at least mild levels of psychological distress. Stress levels ranged from 6% to 47%, anxiety from 21% to 31%, and depression from 12% to 46% (Jakubowski and Sitko-Dominik, 2021). Interestingly, the researchers' results on the anxiety subscale align with Jakubowski and Sitko-Dominik's (2021) results from the first wave, where moderate anxiety was around 21%.

The observed normal psychological distress levels among inclusive teachers in this study can be attributed to several interrelated factors. Firstly, mental health is a naturally sensitive topic. Over time, individuals may forget the severity of the distress they experienced, leading in lower reported levels of psychological distress. This factor could partially explain the differences between the results of the current study and those of previous research.

During the COVID-19 lockdown, teachers faced significant challenges, including the fear of contracting the virus and the associated anxiety. However, the lack of fixed schedules and long school days may have alleviated some of their stress. Upon resuming face-to-face teaching, many teachers likely felt a sense of freedom and relief, which may have contributed to the lower levels of psychological distress observed. Moreover, inclusive teachers likely had more in-person interactions with students with SEND compared to online interactions, positively influencing their psychological well-being.

Additionally, the resilience and personality traits of inclusive teachers working with students with SEND in private schools in South Lebanon might have played a crucial role in their mental health outcomes. Teachers who demonstrate resilience- by adapting to stress and maintaining a positive mindset- may be better equipped to manage the challenges posed by the pandemic and the return to in-person teaching.



Another important consideration is the study's focus on inclusive teachers in South Lebanon. Following the reopening of schools, the educational approach may have shifted to emphasize feedback and reinforcement rather than the introduction of heavy new material. This adjustment could have reduced the workload and stress on teachers.

The social, economic, and cultural environment of South Lebanon likely exerted a strong influence on the study's outcomes. Distinct community support systems and cultural attitudes towards mental health in the region may have provided a buffer against the psychological impacts of the pandemic.

In conclusion, the normal levels of depression, anxiety, and stress found among inclusive teachers can be attributed to several factors. These include the sensitivity and lingering memory of psychological distress, the unique impact of the COVID-19 lockdown and the subsequent return to normalcy, adjustments in school curricula, and the contextual factors and support systems available in South Lebanon. These combined factors likely contributed to the more favorable mental health outcomes observed in the current research.

Recommendations for Policymakers and Practitioners

Below are several recommendations for policymakers and practitioners to more effectively support inclusive teachers' mental health.

For policymakers:

1. Set policies that help teachers maintain a balanced relationship between their professional duties and personal lives.
2. Promote a culture where teachers feel safe sharing emotional struggles and seeking mental health support, reducing barriers in contexts where access to such support is limited.

For practitioners:

1. Promote open conversations about mental health within the school community to build a supportive atmosphere and dispel stigmas and misconceptions.
2. Give priority to personal well-being by engaging consistently in self-care practices.
3. Utilize support networks (colleagues, mentors) to manage both classroom demands and personal stress.

Limitations of the Study

Identifying the limitations reveals potential weaknesses of the research study, which, in turn, can impact the study's results.

- ✓ It is possible that the participants' responses on the Arabic adaptation of the DASS-21 scale were influenced by the long-term memory limitations, as two full school years have passed since the 2021-2022 school year. This time lapse may have affected the accuracy or vividness of their recollection of experiences, potentially impacting their reported mental health outcomes.
- ✓ Due to the sensitive nature of the study, which focuses on mental health, participants may have been hesitant to disclose their personal experiences and emotions. This could have introduced response bias, leading to possible underreporting or over reporting of mental health issues. Consequently, the reliability of the collected data may be subject to fluctuations.
- ✓ The study's focus on private schools in South Lebanon limits the extent to which its findings can be applied to other regions, school types, or educational systems.
- ✓ The research instrument was translated into Arabic to suit the sample which may have influenced the validity and reliability of the data, as slight shifts in meaning could affect response accuracy.



Conclusion

Inclusive teachers in private schools in South Lebanon, following the reopening in the 2021-2022 school year during the pandemic, experienced overall normal levels of psychological distress, with only a notable subgroup (20.5%) exhibiting moderate anxiety.

Suggestions for Future Research

In the light of this study's results and limitations, several directions for future research can be proposed to deepen our understanding of the inclusive teachers' mental health across varied contexts.

First, incorporating public schools in South Lebanon would offer a more comprehensive view of inclusive teachers' mental health and help identify differences between private and public settings.

The study's results, which indicated that a total of 30% of participants experienced moderate, severe, and extremely severe anxiety, highlight the need for further exploration into the specific factors contributing to anxiety among inclusive teachers. Future research should delve deeper into identifying these factors and developing targeted strategies to mitigate anxiety.

Additionally, exploring the mental health of teachers working with different types of SEND categories could provide insights into how these variables impact teachers' mental health.

Finally, longitudinal studies are needed to monitor inclusive teachers' mental health, revealing how classroom demands and continuous support shape their well-being.

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Ethics and Conflict of Interest

The authors of the study acted in accordance with ethical rules in all processes of the research. There are no individuals or financial relationships that could be perceived as potential conflicts of interest related to this study.

Author Contribution

All authors contributed equally to the research.

Data Availability

The data that support the findings of this study are available on request from the corresponding author.

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THE USE OF EDUCATIONAL TECHNOLOGIES BY ADMINISTRATORS AND TEACHERS WORKING IN SPECIAL EDUCATION CENTERS IN THE AGE OF DIGITALIZING EDUCATION: EXAMINING THEIR ATTITUDES TOWARD EDUCATIONAL DIGITAL GAMES

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Abstract

The digital transformation experienced in the twenty-first century has profoundly affected education systems and led to the restructuring of instructional processes. While educational technologies make learning environments more flexible, accessible, and personalized, this transformation becomes even more pronounced in the field of special education. In the context of special education where individual differences are intense educational digital games and technology-supported instructional practices stand out as important pedagogical tools that support the learning process. The aim of this study is to examine the attitudes of special education teachers and administrators toward educational digital games within the context of their use of educational technologies in the age of digitalizing education. In the study, teachers' and administrators' attitudes toward technology and digital games were addressed through a holistic approach, encompassing pedagogical and managerial dimensions. The results show that special education teachers and administrators generally have positive attitudes toward educational technologies and educational digital games. However, these attitudes appear to be related to factors such as pedagogical competence, professional experience, and the level of institutional support. It was concluded that educational digital games support the learning processes of individuals with special needs through features that increase motivation and provide repetition and feedback. In this respect, the study contributes to the literature by addressing technology use in special education not only through individual attitudes but also through pedagogical and managerial dimensions.

Keywords: Special education, educational technologies, educational digital games, teacher attitudes, administrator attitudes, digitalization.



INTRODUCTION

The primary purpose of this study is to examine the attitudes of special education teachers and administrators toward educational digital games within the context of their use of educational technologies in the age of digitalizing education. Recent studies and policy reports emphasize that technology use in special education should be evaluated together with accessibility, instructional adaptation, and institutional support rather than only technical access (Erdem, 2024; Learning, 2010; UNESCO IITE, 2024). Within the scope of the study, the perceptions of teachers and administrators working in the field of special education regarding technology and digital games were addressed through a holistic approach.

The study aims to reveal how educational digital games are evaluated as a pedagogical tool in special education, how these evaluations differ according to teacher and administrator roles, and how they relate to attitudes toward technology use. In this sense, the study offers a perspective that considers not only individual attitudes but also institutional and managerial dimensions. The scope of the study is limited to teachers and administrators working in special education centers. Within this scope, the ways educational technologies are used in instructional processes, attitudes toward educational digital games, and how these attitudes are reflected in pedagogical practices are examined. Considering the distinctive structure of special education, the contribution of technology use to individualized instructional processes is emphasized. Educational digital games are evaluated in relation to assistive technologies, instructional technologies, and digital learning materials, thereby establishing a broad framework regarding technology use in special education (Çay et al., 2020).

The fact that individual differences are prominent in special education necessitates the adoption of flexible, adaptable, and student-centered approaches in instructional processes. Educational technologies and educational digital games are among the important pedagogical tools that can respond to these needs. The literature indicates that technology integration in special education is shaped by teacher competence, assistive technology readiness, and institutional conditions, and that digital game-based learning may support motivation, participation, and individualized practice when aligned with pedagogical goals (Erdem, 2024; Hostovecky & Tokovska, 2025; UNESCO IITE, 2024). The significance of this study stems from examining teachers' and administrators' attitudes together by addressing educational digital games within the context of special education. Previous studies have mostly discussed educational digital games in general education contexts, whereas applications in special education remain comparatively limited, and administrators' roles in technology integration receive less attention than teacher attitudes (Erdem, 2024; Hostovecky & Tokovska, 2025). By demonstrating that technology use in special education is shaped not only by individual teacher preferences but also by managerial support and institutional vision, this study provides an important contribution to literature.

Problem statement: What are the attitudes of teachers and administrators working in special education centers toward educational digital games within the context of their use of educational technologies in the age of digitalizing education? **Sub-problems:** (1) What are the participants' general attitude levels toward educational technologies? (2) What are their attitude levels toward educational digital games? (3) Do attitudes toward educational digital games differ according to role type? (4) Do attitudes toward educational technologies differ according to professional experience? (5) Is there a significant relationship between attitudes toward educational technologies and educational digital games?

METHOD

Research Model

This study was designed using the survey model, one of the quantitative research methods, to examine special education teachers' and administrators' use of educational technologies and their attitudes toward educational digital games in the age of digitalizing education. The survey model is a research approach that enables the description of individuals' current situations, attitudes, and perceptions



regarding a particular phenomenon. The main reason for choosing the survey model is to reveal the general tendencies of teachers and administrators working in special education regarding educational technologies and educational digital games and to examine how these attitudes differ in terms of certain variables. In this context, rather than establishing cause–effect relationships, the study aims to describe the current situation in a multidimensional manner. The research model is descriptive in nature in that it addresses technology use in special education together with its pedagogical and managerial dimensions, and it offers a methodological framework consistent with recent survey-based studies examining teachers’ attitudes toward assistive technology in special education settings (Erdem, 2024).

Study Group

The study group consists of special education teachers and administrators working in special education centers. Participants were included in the study on a voluntary basis. A non-probability convenience sampling method was used, and the inclusion criterion was active employment in the field of special education. In determining the study group, the criterion of actively working in the field of special education was taken as the basis.

Table 1. Demographic characteristics of participants.

Variables		f	%
Role	Teacher	82	68.3
	Administrator	38	31.7
Gender	Male	66	55.0
	Female	54	45.0
Professional Experience	1–5 years	34	28.3
	6–10 years	47	39.2
Total		120	100

As shown in Table 1, most participants were teachers (68.3%), while 31.7% were administrators. The gender distribution was relatively balanced, and participants with 6–10 years of experience constituted the largest professional experience group. These characteristics indicate that the study group included participants with varied institutional roles and experience levels.

Data Collection Process

Research data were obtained through structured data collection instruments aimed at determining the attitudes of special education teachers and administrators toward educational technologies and educational digital games. The data collection process was carried out on a voluntary basis, and participants were provided with the necessary information about the purpose of the study. Data was collected from teachers and administrators working in special education centers via the measurement tools prepared within the scope of the study. For content validity, the draft data collection tool was reviewed by three experts in special education, educational technologies, and measurement and evaluation, and the items were revised in line with their feedback. In addition, a two-week pilot application was conducted before the main implementation to evaluate the clarity, comprehensibility, and applicability of the items. During data collection, attention was paid to the principles of confidentiality and anonymity so that participants could express their views freely and sincerely. Participants’ personal information was protected, and the collected data was used solely for scientific purposes. The fact that the data collection process was limited to a specific time period was considered consistent with the descriptive nature of the study, as it reflects participants’ current attitudes and perceptions.

Data Analysis

The data obtained within the scope of the study were analyzed using statistical methods appropriate for quantitative data analysis. In the analysis process, first, the data was organized and descriptive statistics were calculated. Accordingly, frequency and percentage distributions, as well as mean and



standard deviation values, were used. Descriptive statistics were used to determine participants' levels of attitude toward educational technologies and educational digital games. For group comparisons, an independent samples t test was used according to role type, and one-way ANOVA was used according to professional experience. In addition, Pearson correlation analysis was used to determine the relationship between attitudes toward educational technologies and attitudes toward educational digital games. The statistically accepted significance level was set at $p < .05$. The findings were presented and interpreted through tables. The analysis results were evaluated in line with the purpose of the study and associated with the literature in the discussion section.

Ethical Principles

Ethical principles were followed throughout the research process. Participants' voluntary participation was ensured, and they were informed about the purpose and scope of the study. Participants' identity information was kept confidential, and the collected data was used only for scientific purposes.

FINDINGS

General Attitudes Toward Educational Technologies

Descriptive statistics regarding participants' general levels of attitude toward educational technologies are presented in Table 2.

Table 2. Attitude levels toward educational technologies.

Variable	n	Mean ($\bar{X}$)	Std.Dev.
Attitude Toward Educational Technologies	120	3,92	,54

As seen in Table 2, participants' attitudes toward educational technologies are at a positive level. This finding indicates that the use of technology is generally embraced in special education settings.

Attitudes Toward Educational Digital Games

Findings regarding participants' attitudes toward educational digital games are presented in Table 3.

Table 3. Attitudes toward educational digital games.

Variable	n	Mean ($\bar{X}$)	Std.Dev.
Attitude Toward Educational Digital Games	120	4.05	,48

According to Table 3, participants' attitudes toward educational digital games are at a high level. This indicates that digital games are accepted as a pedagogical tool in special education.

Comparison of Attitudes by Role Type

The distribution of teachers' and administrators' attitude scores toward educational digital games by role type is presented in Table 4.

Table 4. Attitudes toward educational digital games by role type.

Role	n	Mean ($\bar{X}$)	Std.Dev.
Teacher	82	4.12	,45
Administrator	38	3.89	,52

As seen in Table 4, teachers' attitude scores toward educational digital games are higher than those of administrators. This may be related to teachers' direct use of digital games in the instructional process.

Attitudes Toward Educational Technologies by Professional Experience

Participants' attitudes toward educational technologies according to professional experience are presented in Table 5.

**Table 5.** Attitudes toward educational technologies by professional experience.

Professional Experience	n	Mean ($\bar{X}$)	Std.Dev.
1–5 years	34	4.08	.49
6–10 years	47	3.95	.52
11 years and above	39	3.74	.58

According to Table 5, participants with less professional experience have higher attitudes toward educational technologies. This finding suggests that teachers who grew up with digital technologies may be more inclined to use technology.

Relationship Between Attitudes Toward Educational Technologies and Educational Digital Games

The relationship between participants' attitudes toward educational technologies and their attitudes toward educational digital games is presented in Table 6.

Table 6. Relationship between attitudes.

Variables	R
Educational Technologies – Educational Digital Games	.61

As seen in Table 6, there is a moderate positive relationship between attitudes toward educational technologies and attitudes toward educational digital games. This finding indicates that positive attitudes toward technology support the use of educational digital games.

DISCUSSION, CONCLUSION, and RECOMMENDATIONS

In this study, special education teachers' and administrators' use of educational technologies and their attitudes toward educational digital games in the age of digitalizing education were addressed within a multidimensional structure. The findings reveal that technology use in special education is not merely a matter of technical competence; rather, it is a holistic process that should be evaluated together with pedagogical practices, managerial support, and individual attitudes. In this respect, the findings largely overlap with the literature that addresses technology integration in special education in a multidimensional manner (Erdem, 2024; UNESCO, 2024; UNESCO IITE, 2024).

Discussion of general attitudes toward technology

The findings indicate that special education teachers and administrators have positive general attitudes toward educational technologies. The high average attitude levels regarding educational technologies suggest that technology has become an instructional tool embraced in special education settings. This finding is consistent with previous studies showing that teachers' attitudes toward technology facilitate the use of technology in instructional processes (Birkollu et al., 2017; Erdem, 2024). In special education, where individual differences are evident, the supportive role of technology becomes more visible. However, the findings also show that positive attitudes toward technology do not always guarantee the implementation of high-quality and effective practices. As emphasized in the literature, even when teachers have a positive view of technology, they may reflect technology in classroom practices to a limited extent due to insufficient pedagogical knowledge or inadequate technical support. In this study, it is notable that positive attitudes toward technology yield more meaningful outcomes especially when integrated with institutional support and managerial vision. The findings show that administrators' attitudes toward technology are an important variable that indirectly influences teachers' technology use.

The role of assistive and instructional technologies in special education

The findings reveal that assistive and instructional technologies play an important role in special education. Participants evaluate technology as a tool that supports learning and enables individualized instruction. This is also supported by the high attitude towards averages toward educational



technologies. This finding aligns with the literature emphasizing the role of technology in creating accessible learning environments in studies conducted with individuals who experience learning difficulties (Degirmenci et al., 2020; UNESCO IITE, 2024; Saygıner & Laçın, 2024). Assistive technologies increase students' active participation in the learning process and support independent learning skills.

However, the findings suggest that the effective use of instructional technologies is directly related to teachers' pedagogical technology knowledge. Using technological tools only for presentation purposes may not provide the expected contribution to the learning process. Therefore, the findings indicate that technology is positioned as a pedagogical tool in special education, but that this positioning should be strengthened through teacher education and institutional support.

Discussion of visualization and animation-based digital materials

The findings show that visualization, infographics, and animation-based digital materials have an important place in special education. Participants evaluate such materials as tools that help concrete abstract concepts and reduce cognitive load. This result is consistent with studies demonstrating the facilitating effect of visual-based digital materials on learning (Baglama et al., 2017; Baglama et al., 2018). At the same time, the literature emphasizes that excessive use of visual materials or use independent of pedagogical objectives can be distracting. In this context, the findings show that when animation- and visualization-based materials are used consciously and purposefully, they make meaningful contributions to the learning process. There have been extensive studies regarding the use and efficacy of multimedia learning in education. With the advent of ubiquitous technologies like smartphones and tablet pc, people start spending more time watching videos and engaging in other media contents. Meanwhile, the use of educational videos that are prepared using interactive e-learning techniques has been trending upwards in commercial and educational institutions. There are varied and extensive contributions of multimedia based educational materials to learning and teaching processes (Türköz, 2019). Teachers' evaluation of these materials in line with pedagogical goals indicates that technology in special education is used not superficially but functionally.

Reciprocal discussion of attitudes toward educational digital games

When attitudes toward educational digital games are examined, it is seen that teachers and administrators approach these games positively in general. The findings reveal that attitude levels toward educational digital games are high and that teachers consider these games a functional tool in the instructional process. The fact that educational digital games provide repetition, feedback, and motivation supports the active participation of individuals with special needs in learning processes. Recent literature reviews also underline that digital game-based learning can strengthen engagement and individualized support for learners with intellectual disabilities when pedagogically structured (Ağırçöl, 2020; Hostovecky & Tokovska, 2025).

The implicit learning effect emphasized by Ağırçöl (2020) is consistent with the findings obtained in this study. However, the literature states that if digital games are used independently of pedagogical objectives, their contribution to the learning process may remain limited. The findings of this study show that teachers evaluate educational digital games not only as an element of entertainment but as pedagogical tools that structure learning. This can be considered an important indicator for the conscious use of digital games in special education.

Discussion of the managerial dimension and technological leadership

One of the important findings is that administrators' attitudes toward technology indirectly influence teachers' technology use. Comparisons by role type show that teachers' attitudes toward educational digital games are higher than administrators', while managerial support plays a decisive role in technology integration. This finding indicates that technology integration in special education is an institutional process beyond individual efforts. Administrators' technological leadership roles are critical in terms of support provided to teachers, infrastructure opportunities, and establishing a shared institutional vision. The literature also emphasizes that when managerial support is inadequate,



teachers' motivation to use technology decreases and inclusive technology practices become harder to sustain (UNESCO, 2024; UNESCO IITE, 2024).

Conclusions and recommendations

In this study, special education teachers' and administrators' use of educational technologies and their attitudes toward educational digital games in the age of digitalizing education were addressed within a holistic framework. The findings discussed in detail in the discussion section reveal that technology use in special education is not merely a matter of technical competence or individual preference; rather, it is a multidimensional process that should be evaluated together with pedagogical practices, managerial support, and institutional structure. In this respect, the study presents results that support and extend the literature on technology integration in special education.

General conclusions based on the research findings

The results show that special education teachers and administrators generally have positive attitudes toward educational technologies and educational digital games. As emphasized in the discussion section, participants' positive attitudes toward technology can be regarded as an important factor that facilitates the acceptance and dissemination of technology-supported instructional practices in special education settings. Especially in the context of special education, where individual differences are pronounced, it is understood that the supportive role of technology in the instructional process becomes more visible. However, the findings also show that positive attitudes toward technology alone do not guarantee effective and high-quality practices. As stated in the discussion section, for technology use to make a meaningful contribution to instructional processes, it needs to be integrated with pedagogical competence, instructional design knowledge, and institutional support. This result indicates that technology integration is a planned and systematic process beyond individual efforts.

Pedagogical implications regarding technology use in special education

The findings show that assistive and instructional technologies support individualized learning processes in special education. As discussed, teachers' evaluation of technology as a tool that structures learning and adapts to students' learning pace reveals a strong basis for pedagogical technology use in special education. It was concluded that visualization, infographic, and animation-based digital materials make significant contributions in terms of concretizing abstract concepts, reducing cognitive load, and increasing learning motivation. As emphasized in the discussion section, this finding shows that technology in special education is not only supportive but has become a central element of the instructional process. It was also determined that educational digital games make meaningful contributions to the learning processes of individuals with special needs by providing repetition, feedback, and motivation. As discussed, using game-based digital applications in alignment with pedagogical goals increases the permanence and effectiveness of learning. In this context, it was concluded that educational digital games should be evaluated as a pedagogical tool in special education.

Conclusions regarding the managerial and institutional dimension

The results reveal that administrators' attitudes toward technology in special education institutions indirectly but strongly influence teachers' technology use. As stated in the discussion section, administrators' technological leadership roles have a decisive function in providing infrastructure opportunities, supporting teachers, and establishing a shared institutional vision.

This finding indicates that technology integration in special education cannot be limited to individual teacher efforts; it needs to be strengthened through managerial support and institutional policies. Therefore, to develop sustainable practices for technological use in special education institutions, administrators should assume active and guiding roles.



Practical recommendations

Based on the research findings and the inferences obtained in the discussion section, the following practical recommendations have been developed: In-service training programs should be planned for special education teachers, focusing on the pedagogical use of educational technologies. Educational digital games, animation and visualization-based digital materials should be systematically integrated into instructional processes by considering the characteristics of individuals with special needs and instructional objectives. Technological infrastructure in special education institutions should be strengthened, and teachers' access to digital materials should be facilitated.

Strategies should be developed to support the technological leadership roles of administrators, and a common and sustainable institutional vision for technology use should be established.

Recommendations for education policies and future research

In line with the results, it is important to develop technology integration strategies specific to the field of special education within the context of education policies. It is recommended that teacher education programs include more content on technology use and digital material design in special education. In future studies, research can be conducted that addresses technology use in special education from the perspectives of different stakeholders (students, families, and counseling services). In addition, comparative studies focusing on different special needs groups may reveal the effects of technology use in more detail.

Overall evaluation of the results

In conclusion, this study shows that technology used in special education displays a multidimensional structure and that educational digital games are an important component of this structure. Consistent with the findings presented in the discussion section, it is understood that positive attitudes toward technology facilitate the integration of educational digital games into instructional processes; however, for this integration to be effective and sustainable, pedagogical competence, managerial support, and institutional vision must be addressed together.

In this respect, the study offers important contributions to the literature on technology use in special education both theoretically and in terms of practice.

Contribution and limitations of the study

The results and recommendations obtained in this study make it possible to evaluate the study's original contributions and limitations in a more meaningful way. The findings presented in the discussion and conclusion sections clearly show the necessity of addressing technology use in special education through its pedagogical, managerial, and institutional dimensions.

This holistic perspective constitutes the basis of the study's original contribution to literature. The original contribution of this study is that it examines the attitudes of special education teachers and administrators toward educational technologies and educational digital games together, investigating technology integration in special education not only through individual attitudes but within a holistic framework in the context of pedagogical practices and managerial support. It can be determined what kind of work has been done on the centers' use of technology. As emphasized in the conclusion and discussion sections, positive attitudes toward technology alone do not guarantee effective practices; these attitudes need to be integrated with pedagogical competence and institutional support (Çay et al., 2020).

The study also makes an original contribution by addressing educational digital games in the context of special education not merely as motivation-enhancing tools but as pedagogical components that structure learning. The findings presented in the conclusion section show that educational digital games make meaningful contributions to learning processes when used in alignment with individualized instructional processes.



In this respect, the study expands the literature on the use of digital games in special education through pedagogical and managerial dimensions. Facilities and monitoring of special education schools in Turkey A general study can be conducted regarding its use. In schools with technical equipment, special Technological uses in education can be examined. Special education and compatibility (Çay et al., 2020). In addition, examining administrators' technological leadership roles in relation to teacher attitudes can be considered an important contribution emphasizing that technology integration in special education is an institutional process. This approach also forms the theoretical basis of the practice- and policy-level recommendations developed in the conclusion section.

The findings and conclusions should be evaluated within certain limitations. First, this study is limited to teachers and administrators working in special education centers. The inferences presented in the conclusion section should be interpreted within this context and should not be directly generalized to different educational levels or different stakeholder groups.

Another limitation is that the data was obtained based on participants' self-reports. The attitudes and perceptions emphasized in the discussion and conclusion sections are based on participants' statements and do not include direct observation of classroom practices. This should be considered when interpreting the results.

In addition, the study was conducted within a specific time, and it should be considered that attitudes toward technology use and educational digital games may change over time. To reveal the long-term effects of the recommendations developed in the conclusion section, future longitudinal studies may make important contributions to the field.

Finally, educational digital games and educational technologies were addressed within a general framework, and the study did not focus on a specific game type or a particular special needs group. While this provides a broad perspective, it can be considered a limitation in terms of more in-depth analyses.

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Ethics and Conflict of Interest

The authors declare that ethical guidelines were followed throughout the research process. Participation was voluntary, informed consent was obtained from participants, confidentiality and anonymity were protected, and the collected data were used only for scientific purposes. The authors also declare that there is no conflict of interest regarding this study.

Author Contribution

Yücehan Yücesoy contributed to the conceptualization of the study, research design, and supervision; Burak Demir contributed to the literature review, data collection process, and initial drafting; S. Sunay Yıldırım Doğru contributed to validation, statistical analysis, and interpretation of the findings; and Selenay Güler contributed to the organization of Tables, discussion-conclusion writing, and final editing. The overall contribution of each author to the article is equal and corresponds to 25%.

Data Availability

The data that support the findings of this study are available on request from the corresponding author.

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PEER INFLUENCE, SOCIAL-MEDIA AND CYBERCRIME AMONG IN-SCHOOL ADOLESCENTS IN OYO STATE NIGERIA

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Abstract

This study examined the impact of social media use and peer pressure on the engagement of in-school adolescents in cybercrime in Oyo State, Nigeria in an attempt to fill a crucial knowledge gap. Data from 400 secondary school students were gathered for the study using validated questionnaires and a cross-sectional survey approach. The study was guided by a single research question and two hypotheses, and the data were analysed using multiple regression, descriptive statistics, and a population t-test. Cybercrime engagement was high, according to the results (Mean=25.80, SD=9.20; $t(399)=31.47$, $p<.05$). Furthermore, social media use and peer pressure together predicted up to 41.6% of the variation in cybercrime involvement ($R^2=.416$). Peer pressure was found to be a more powerful predictor than social media usage ($\beta=.236$, $p<.05$) based on an analysis of their relative influence ($\beta=.531$, $p<.05$). The study concludes that peer pressure is the major determinant of adolescent's cybercrime, though both variables are responsible. To promote resilience against these social influences, recommendations made include improving digital literacy instruction and putting peer-oriented cyber-ethics programmes into place in secondary schools in Oyo State.

Keywords: Cybercrime, peer influence, social media, in-school adolescents.

INTRODUCTION

Peer connections and digital media are becoming more important during adolescence, a crucial developmental stage marked by increased vulnerability to outside influences. The swift growth of social media and internet access in Nigeria has changed the social environment for adolescents enrolled in school, opening them new channels for communication, education, and most interestingly, deviant behaviour. Peer pressure combined with social media's special nature, which include anonymity, accessibility, and lack of inhibition, has created a climate in which cybercrime is becoming a major social issue. It seems to be a natural development from physical bullying to digital forms of deviance, with peer involvement in cybercrimes including sexting, cyberbullying, and internet fraud ("yahoo-yahoo") is frequently viewed by young Nigerians as a feasible route to social recognition and socioeconomic advancement, rather than solely as a deviant behaviour (Adewuyi, et al., (2024).



Previous studies, such as the one conducted by Babatunde (2024), have demonstrated a link between general aberrant behaviour among secondary school students in Southwest Nigeria and peer and media impact. Similar to this, research conducted by Ibrahim and Thi (2021) and Ayoola (2021) have brought attention to particular online dangers, such as sexting and cyberbullying, among Oyo State's adolescent population. The complex interactions between peer pressure and social media use, particularly in promoting active involvement in cybercrime, are still not fully understood, nevertheless. By examining how peer networks and social media use together predict cybercrime involvement among adolescents enrolled in school in Oyo State, Nigeria, this study aims to close this gap. The study also seeks to offer a comprehensive understanding of a critical problem, guiding focused responses and educational initiatives to protect teenagers in the digital era.

Peer Pressure and Adolescent Deviant Behaviour

Peer impact on adolescent behaviour is a well-established topic in the literature on psychology and sociology. Research continuously confirms that it has a substantial association with deviance in Nigeria. Peer pressure is a powerful motivator for activities that defy social standards, as demonstrated by Babatunde's (2024) identification of media and peer influence as major correlates of deviant behaviour among secondary school students in Southwest Nigeria. Peer impact is a significant factor of bullying behaviour among adolescents in school, according to Emmanuel's research conducted in Ibadan. This implies that adolescents may be persuaded to commit behaviour they would usually refrain from due to the desire for social status and approval within their peer group. According to research on cybercrimes, peer pressure significantly predicts undergraduates' propensity for cybercrime (Adewuyi *et al.*, 2024). It seems to be a natural development from physical bullying to digital forms of deviance, with peer networks serving as the social incentive for these behaviour.

The Influence of Social Media

Adolescents' behaviour is greatly impacted by social media platforms, which have emerged as their main social area. Social media use is directly linked to delinquent job choices among young people in Ibadan, according to Ijiola *et al.* (2025), suggesting that exposure to particular online networks and material can influence criminal goals. According to Joshua, Usman, and Oguche (2024), peer groups and social media have a big impact on secondary school pupils in Abuja who engage in maladaptive behaviour. The platforms provide anonymity, which might lower empathy and inhibitions, two important components of cyberbullying, according to Ibrahim and Thi (2021). In addition to bullying, social media is a major vector for sexting, a habit linked to serious sexual hazards, as examined by Ayoola (2021). These platforms' well-manicured, frequently glitzy lifestyles can also inspire dreams that some Adolescents try to fulfill through illegal means, like online fraud, which feeds the social construction of such fraud as innovation (Ayodele *et al.*, 2022).

Level of Cybercrimes among Adolescents

Research shows that among Nigerian adolescents, including those in Oyo State, cybercrime is a common occurrence rather than a theoretical idea. A worrying picture is painted by extrapolations from regional and comparable studies, even if direct, extensive prevalence studies that are exclusively focused on Oyo State secondary schools are still in their infancy. An excellent indicator of the behaviour being fostered at a younger age is research conducted on undergraduate populations, who are frequently only a few years older than senior secondary students. For example, one investigation conducted at the University of Ilorin, a prominent university in the nearby state of Kwara, revealed a notable frequency of online crimes among undergraduates, encompassing everything from online frauds to phishing and hacking (Balogun *et al.*, 2024). This implies that the formative exposure and possibly the first engagement in these kinds of activities take place in the secondary school years. Similarly, study conducted among



undergraduates at Obafemi Awolowo University in Ile-Ife, a university that is similar to Oyo State in terms of culture and society reveals a rising incidence of cybercrime, which the students themselves view as a growing threat (Rosanwo, 2023). With a particular focus on Adolescents, Ibrahim and Thi (2021) found that cyberbullying poses a serious concern, with a sizable portion of secondary school students in Nigeria reporting either being the offenders or victims. Additionally, Idowu et al. (2021) described a variety of cybercrimes, like as financial fraud and identity theft, which are becoming more and more accessible to tech-savvy Adolescents in a study of young people in Abuja. As discussed by Ayodele et al. (2022), the social construction of internet fraud as a speedy route to success and a form of innovation among Nigerian youths further normalizes these activities, potentially increasing their prevalence among impressionable secondary school students in Oyo State who are eager to imitate perceived successful models.

The Impact of Social Media and Peer Influence on Cybercrime Involvement

Adolescent participation in cybercrime is strongly accelerated by the mutually reinforcing interaction between social media use and peer pressure. Both factors are powerful on their own, and when combined, they create a feedback loop that intensifies abnormal behaviour. Through direct instruction, neutralizing strategies, and social reinforcement, peer influence works. On the other hand, social media offers the venue, anonymity, and obvious benefits for successful cybercrime. In Southwest Nigeria, Babatunde (2024) examines this relationship in detail and comes to the conclusion that peer pressure and media, including social media, are important predictors of deviant behaviour in secondary school pupils. Adolescents who hang out with classmates who commit or praise cybercrime are more likely to follow suit, according to the study, and their participation in social media platforms speeds up this process. This is supported by research conducted in Ibadan, Oyo State, by Ijiola, Asiyambi, and Ibrahim (2025), which clearly connects social media use, peer pressure, and childhood trauma to juvenile delinquent profession choices. Their research indicates that peer groups frequently post "success stories" about cybercrime on social media, which makes it a desirable substitute for young people looking to advance their social standing or achieve financial independence.

In their Abuja study, Joshua et al. (2024) further support this combined influence by demonstrating that peer groups and social media strongly predict maladaptive behaviours in secondary school students. Peers offer social evidence and direct pressure, while social media offers the tools, the targets (via extensive networks of potential victims), and a display of the tangible rewards of cybercrime. This interplay is evident (Ayodele *et al.*, 2022). This fosters an atmosphere in which peers teach deviant behaviour, and the carefully chosen content on social media feeds continuously validates and glamorizes it, normalizing what is fundamentally illegal behaviour. Peer pressure and social media have a lot in common, making it difficult to separate their respective influences. Though social media is the enabling medium, peer influence may be the main instigator, according to the results of various research that try to balance their respective effects.

Adewuyi, Odutayo, Opesemowo, and Jacob's (2024) study on undergraduates provides important information that is extremely pertinent to comprehending the trajectory from adolescence. According to their research, peer pressure was a stronger indicator of cybercrime inclinations than gender or socioeconomic position. This suggests that the norms and behaviours of one's close social circle have a greater influence on cybercrime than does social media as a whole. Although the medium is essential, the motivation is deeply societal. This is corroborated by Okeke and Oli's (2023) research on undergraduate perspectives, which found that peer association was a major factor determining participation in cybercrimes.



But to dismiss social media as merely a tool would be to underestimate its significance. According to Lala, (2022), the usage of social media by undergraduate students present ethical difficulties, such as anonymity and lack of inhibition, this can encourage unethical behaviour on their own. Peer influence and this innate potential, however, have a cumulative effect. According to perception studies conducted by Uche and Uche, (2023) at the University of Nigeria, Nsukka, and by Friday (2025) at Delta State University, young people are aware of the phenomenon called Yahoo Yahoo, or internet fraud, and frequently blame it on a mix of their desire for quick money which is glamorized on social media and the influence of friends who are already in the business.

The literature ultimately points to a hierarchical relationship. The main social trigger for cybercrime is frequently peer pressure, which offers the first rationale, guidance, and sense of community. Social media, on the other hand, is the main medium for operations and motivation. According to Aborisade (2023) and Ayodele *et al.* (2022), it is the setting where methods are acquired, victims are located, and the proceeds of crime are showcased to generate social capital, which in turn serves to reinforce the deviant norms of the peer group. As a result, social media is essential to the growth and spread of cybercrime, even though peer pressure may be more directly linked to its beginning.

Need of the Study

The main purpose of this study is to investigate peer influence, social media and cybercrimes among in-school adolescents in Oyo State. The specific objectives of the study are to:

Ascertain the level of cybercrimes among secondary school adolescents in cybercrimes in Oyo State.

Analyze the joint influence of peer influence and social media on involvement of secondary school adolescents in cybercrimes in Oyo State.

Determine the relative influence of peer influence and social media on involvement of secondary school adolescents in cybercrimes in Oyo State.

Research Question

One research question raised to guide this study stated below:

What is the level of cybercrimes among secondary school adolescents in cybercrimes in Oyo State?

Hypotheses

The following hypotheses were tested at .05 level of significance:

There is no significant joint influence of peer influence and social media on involvement of secondary school adolescents in cybercrimes in Oyo State.

There is no significant relative influence of peer influence and social media on involvement of secondary school adolescents in cybercrimes in Oyo State.

METHOD

Population and Sample

The study population will consist of all 400,050 in-school adolescents in public and private secondary schools across the three senatorial districts of Oyo State (Fagbemi, 2025). First, a simple random sampling technique was used to select one local government area from each senatorial district. Second, stratified random sampling was employed to select six schools (three public and three private) from the chosen local governments. Finally, a random sampling method was used to select students from Senior Secondary (SS) 1, 2, and 3 in across the selected schools. Using Taro Yemani sampling approach and



based on 5% margin error, a total of 400 adolescents were sampled for the study. This ensures representation across key demographics and school types.

This study a cross-sectional survey approach. This design is appropriate for collecting data from a large sample at a single point in time to examine the relationships between the variables of interest namely peer influence, social media use, and cybercrime involvement. A multi-stage sampling procedure used.

Data and Source of Data

Data will be collected using Peer Pressure Questionnaire (PPQ) developed by Saini and Singh (2016), Social Media Usage Questionnaire (SMUQ) and Cybercrime Involvement Questionnaire (CIQ) developed by the researcher. The instruments are preceded by Section A which is the demographic information of the respondents such as age, gender, school type, parents' occupation. Section B of the instrument is the Peer Pressure Questionnaire which is 25-item self-reported questionnaire tapping into perceived peer pressure of individuals. Section C is the Social Media Usage Questionnaire which uses 21 items to measure the type, purpose and frequency of usage of social media. Section D is 10-item CIQ which elicit response on the tendency for involvement of the respondents in cybercrime using 4-point likert scale. PPQ validity has been ensured by the authors and the instrument was adopted by the researcher. The face and content validity of SMUQ and CIQ was achieved through vetting and expert review. Their construct validity was however achieved through the engagement of two experts in Educational Psychology and Research, Measurement and Evaluation. While an internal consistency of 0.82 was reported by Saini *et al.* (2016) for PPQ, SMUQ and CIQ were pilot-tested on adolescents from other state by the researcher and a test-retest reliability coefficient of .76 and .73 was derived for SMUQ and CIQ respectively.

Statistical tools and econometric models

This section elaborates the proper statistical model used to advance the study from data in the direction of interpretations. The detail of methodology is given as follows.

Descriptive Statistics

Descriptive statistics majorly frequencies and percentages were used to summarize the demographic data. Inferential statistics, specifically population t-test was used to answer the research question. Simple regression analysis and multiple regression analysis were used to test the null hypotheses. The alpha level for significance was set at .05.

RESULTS

Results of Descriptive Statics of Study Variables

Table 1. Descriptive statistics.

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Peer Influence Score	400	25.00	100.00	58.45	8.12
Social Media Usage Score	400	21.00	84.00	42.10	7.55
Cybercrime Involvement Score	400	10.00	40.00	25.80	9.20
Valid N (listwise)	400				



Table 1 presents descriptive statistics for three variables from a sample of 400 respondents. The peer influence mean score (mean = 58.45) is the highest on average, with a relatively narrow spread of scores (SD = 8.12). Social media usage has a lower average score (mean = 42.10) and moderate variability (SD = 7.55). Notably, the cybercrime involvement score has a mean score of 25.8, which is near the midpoint and the largest standard deviation (SD = 9.20), indicating the most significant variation in responses among the participants. The identical sample size (N=400) for all variables confirms a complete dataset without missing values for this analysis. The data suggests that while peer influence is consistently high in this group, levels of cybercrime involvement differ considerably from person to person.

Table 2. Demographic characteristics of respondents (N=400).

Demographic Variable	Category	Frequency (n)	Percentage (%)
Age	13 - 16 Years	278	69.5
	17 Years & Above	122	30.5
Gender	Male	188	47.0
	Female	212	53.0
School Type	Public	255	63.8
	Private	145	36.2
Parents' Occupation	Civil Servant	98	24.5
	Trader	115	28.8
	Farmer	42	10.5
	Artisan	68	17.0
	Self-Employed (Other)	77	19.2

Table 2 presents the socio-demographic information of the respondents. It shows that 500 respondents were sampled for the study, out of which 378 (69.5%) were within the age range of 12-16 years while 122 (30.5%) were within the age range of 17 years and above. The table also shows that 188 (47.0%) were male while 212 (53.0%) were female. Distribution by school type shows that 255 (63.8%) respondents were in public secondary schools while 145 (36.2%) were in private secondary schools. Distribution by parental occupation shows that those whose parents were civil servants are 98 (24.5%); those whose parents were traders were 115 (28.8%); those whose parents were farmer were 42 (10.5%); those whose farmers were artisans were 86 (17.0%) while those whose parents were self-employed (others) were 77 (19.2%). The table therefore shows a slight skewed distribution towards age range 13 - 16 years, the female gender and public secondary schools.

**Table 3.** Population t-test showing level of cybercrime involvement among the respondents.

Variable	N	Mean	M. Diff	SD	t	Sig.	Remarks
Cybercrime Involvement	400	25.8	2.37	9.20	31.47	.000*	High

Table 3 shows the level of cybercrime involvement among the respondents. It shows that the level of cybercrime involvement is high compared with the population with mean and standard deviation (Mean = 25.8; SD = 9.20) and t-test value of 31.47 at .000 alpha level. This provides answer to Research Question 1.

This Table 4 shows the joint influence of Peer Influence and Social Media Usage on Cybercrime Involvement.

Table 4. Model summary for joint influence of the independent variables on cybercrime.

Model	R	R-Square	Adjusted R Square	Std. Error of the Estimate
1	.645	.416	.412	7.05

Table 4 presents the joint influence of peer pressure and social media usage on cybercrime involvement. The R Square value of .416 means that together, peer pressure and social media usage explain 41.6% of the variance in cybercrime involvement scores. There is therefore a significant joint influence of peer pressure and social media usage on cybercrime involvement. Hypothesis 1 is therefore rejected.

Table 5. Relative influence of peer influence and social media involvement in cybercrime.

Model	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t	Sig.
(Constant)	2.150	1.105		1.946	.052
Peer Influence	.601	.052	.531	11.558	.000*
Social Media Usage	.288	.056	.236	5.143	.000*

*p<.05

Table 5 shows the relative influence of peer pressure and social media usage on cybercrime involvement among the respondents. The table shows that peer pressure ($t = 11.558$, $\beta = .531$; $p = .000$) is a more potent contributor to cybercrime involvement, followed by social media usage ($t = 5.143$, $\beta = .236$; $p = .000$). This shows that a significant relative influence of peer pressure and social media usage exists on cybercrime involvement among the respondents. Hypothesis 2 is subsequently rejected.

DISCUSSION, DISCUSSION, CONCLUSION, and RECOMMENDATIONS

This study established that the level of cybercrime involvement among the respondents is high. The reason for this could be as a result of unrestricted access to digital gadgets such as smart phones, laptops, tablet, palmtop, etc. which has given adolescents unfettered access to digital platforms. This findings is similar to findings in literature by Balogun et al. (2024) who showed widespread and frequent online crimes among undergraduates, encompassing everything from online frauds to phishing and hacking. The authors asserted that the formative exposure and possibly the first engagement in these kinds of activities take place in the secondary school years. Rosanwo (2023) also found a rising incidence of cybercrime, which the students themselves view as a growing threat while Ibrahim et al. (2021) found that cyberbullying poses a serious concern, with a sizable portion of secondary school students in Nigeria



reporting either being the offenders or victims. Similar findings by Idowu et al. (2021) and Ayodele et al. (2022) have all found growing cybercrime among Nigerian youths, describing as a situation which potentially increase prevalence of cybercrime among secondary school students in Oyo State.

A joint influence of peer pressure and social media usage on cybercrime involvement among adolescents was also found. A joint influence of peer pressure and social media usage on cybercrime involvement among adolescents was also found. This is as a result of the fact that peer influence affects individuals (either positively or negatively) during adolescents. This finding lend credence to Ijiola et al. (2025) establishing a strong link social media use, peer pressure, and childhood trauma to juvenile delinquency such as cybercrimes. Joshua et al. (2024) also support this combined influence by demonstrating that peer groups and social media strongly influence maladaptive behaviour in secondary school students. This interplay, according to Ayodele et al. (2022) is evident as peers offer social evidence and direct pressure, while social media offers the tools, the targets through extensive networks of potential victims, and a display of the tangible rewards of cybercrime. This creates an atmosphere in which peers teach and learn deviant behaviour on social media and copy their peers irrespective of the illegality of their behaviour (Adewuyi et al., 2024).

The study also found that while each of peer pressure and social media usage influenced cybercrime involvement of the respondents, peer pressure is a more potent influencer. This is owing to the fact that peers can force an adolescent into deviant behaviour and crimes such as cybercrime while social media platform can be an avenue to learn and imbibe vices. This finding is supported by Babatunde (2024) who reported that peer pressure and social media are both important predictors of deviant behaviour in secondary school students. Adewuyi et al. (2024) had earlier reported that peer pressure is a stronger indicator of cybercrime inclinations than gender or socioeconomic position. On social media, Lala (2022) found that the usage of social media by students presents ethical difficulties capable of encouraging unethical behaviour. Uche et al. (2023) noted that through social media platforms, young people become aware of the "Yahoo Yahoo" phenomenon, or internet fraud while according to Aborisade (2023), the main social trigger for cybercrime is frequent peer pressure. Supporting the influence of social media usage on cybercrime, Ayodele et al. (2022) noted that social media is the setting where methods are acquired, victims are located, and the proceeds of crime are showcased to generate social capital, which in turn serves to reinforce the deviant norms of the peer group. As a result, social media is essential to the growth and spread of cybercrime, even though peer pressure may be more directly linked to its beginning.

Conclusion

According to the study, the adolescents' engagement in cybercrime is alarming. Peer pressure and social media use work together to greatly affect this phenomenon, which is not caused by a single element. Each of the variables contributes to an increase in cybercrime, but their combined effect is especially strong. In addition, peer pressure is a more potent and significant predictor of involvement in cybercrime than social media use when compared directly. This implies that adolescent are more likely to engage in cybercrime due to the need for social acceptance, adherence to group norms, and influence from their close social circle than due to the amount of time spent or the activities they engage in on social media platforms alone.

Recommendations

The following specific recommendations are made in order to remedy these problems:

- ✓ There is need to create and include workshops on digital citizenship and cyber-ethics into school curricula, led by qualified peer mentors. This strategy encourages good online conduct by utilizing the constructive peer influence.



- ✓ Effort must be made to inform parents about the powerful influence of peer pressure on internet behaviour.
- ✓ Students should be equipped to support their own critical thinking so they can fend off harmful social influences and make morally sound decisions on the internet on their own.
- ✓ Educational institutions and youth organizations ought to proactively establish and support positive online communities or forums that center on responsible technology usage, such online discussion, digital art, or coding.
- ✓ There is need to improve social media literacy as Social media is still a crucial ecosystem even though it has a secondary influence. In order to develop more resilient and critical users, education should go beyond safety warnings and teach adolescents about digital footprints, algorithmic persuasion, and the psychological strategies employed on these platforms.

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Ethics and Conflict of Interest

The authors declare that ethical guidelines were followed throughout the research process. We make clear that the views and findings expressed in the study are solely those of the authors. The authors also declare that there is no conflict of interest regarding this study.

Author Contribution

All authors contributed equally to the research.

Data Availability

The data that support the findings of this study are available on request from the corresponding author.

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THE LINK BETWEEN TEACHERS' LEISURE SKILLS AND ORGANIZATIONAL HAPPINESS

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Abstract

This study examines the relationship between teachers' organizational happiness levels and their leisure skills. A quantitative correlational survey design was employed. The study population comprised 5,467 public school teachers working in Çanakkale province during the 2023–2024 academic year. The sample consisted of 480 teachers selected through convenience sampling. Data were collected using the Leisure Skills Scale (Sürücü & Ertan, 2020) and the Organizational Happiness Scale for Teachers (Çakır & Yavuz, 2022), and analyzed using SPSS 26. Findings revealed a positive, statistically significant, albeit modest correlation between the two variables ($r = .22, p < .001$). The regression model indicated that leisure skills explain 4.6% of the variance in organizational happiness ($R^2 = .046, F_{(1, 478)} = 23.25, p < .001$). It is recommended that in-service training programs and social activities supporting leisure skills be expanded.

Keywords: Leisure skills, organizational happiness, PERMA model, serious leisure.

INTRODUCTION

In today's digital era, the boundaries between professional and personal life have become increasingly blurred due to rapid digitalization, remote work, and AI integration. Escalating job demands, continuous information flow, and heightened cognitive load generate structural pressures that challenge employees' psychological well-being and resilience. Within this context, the quality and structuring of leisure time emerge as critical determinants of individuals' overall life quality and sustainable well-being (United Nations, 1948).

Leisure is conceptualized as a self-determined time domain in which individuals voluntarily engage in activities beyond obligatory roles and responsibilities (Arslan, 2011; Aytaç, 2017; Karaküçük, 2014). Meaningful engagement in leisure activities has been shown to enhance stress-coping capacities and strengthen psychological resilience (Harmon & Kyle, 2016). Theoretically, leisure aligns closely with the core components of Seligman's (2011) PERMA model, suggesting that structured and meaningful leisure experiences contribute significantly to flourishing.

The leisure literature has advanced substantially at both theoretical and empirical levels. Structured leisure participation has been associated with improved mental health outcomes (Tsaur et al., 2021). Longitudinal evidence indicates that leisure-based physical activities contribute to public health



(Whitfield et al., 2019), and meta-analytic findings reveal that engagement in leisure activities reduces the risk of dementia (Su et al., 2022). These findings collectively position leisure as a protective psychological resource with long-term individual well-being benefits.

In parallel, the organizational happiness literature conceptualizes employee happiness as an integrated construct encompassing cognitive evaluations, affective experiences, and overall psychological functioning within the workplace (Warr, 2011). Empirical studies demonstrate that positive affect is strongly associated with life satisfaction (Diener & Seligman, 2004), while organizational happiness contributes to enhanced performance and organizational commitment (Warr, 2007). Within teacher populations, longitudinal studies indicate that psychological happiness strengthens professional commitment through the mediating role of self-efficacy (Yin et al., 2023).

Contemporary perspectives, particularly the Job Demands–Resources (JD-R) model, emphasize that employee happiness is shaped not only by job demands but also by personal resources. In this framework, leisure skills—defined as individuals’ proactive ability to plan, organize, and engage in meaningful leisure activities—can be conceptualized as a critical personal resource facilitating recovery and replenishing psychological energy. Despite the growing evidence on general leisure benefits, empirical evidence on the predictive role of leisure skills in relation to organizational happiness remains limited. The teaching profession is characterized by high levels of emotional labor and cognitive intensity, rendering teachers particularly vulnerable to psychological strain. Accordingly, this study examined whether leisure skills significantly predict organizational happiness among teachers.

METHOD

The present study employed a correlational survey model to examine the relationship between teachers’ leisure skills and their organizational happiness without intervention (Karasar, 2019).

Population and Sample

The population consisted of 5,467 teachers across 187 public schools in Çanakkale’s central district and the districts of Çan, Biga, Ezine, and Lapseki during 2023–2024. Based on the formula by Baş (2005) (95% confidence, 5% margin of error), the minimum required sample size was 367 participants. The resulting sample of 480 teachers exceeded this threshold. Data collection was carried out through face-to-face distribution at 42 schools between May 1 and June 30, 2024.

Table 1. Gender distribution/

Gender	n	%
Female	266	55.4
Male	214	44.6
Total	480	100.0

Table 1 shows the gender distribution of the study sample. The total sample consisted of 480 participants; 266 (55.4%) were women and 214 (44.6%) were men. The distribution reveals a moderately female-dominated structure, with female participants outnumbering male participants by approximately 10.8 percentage points. Although complete gender parity was not achieved in the sample, the proportional representation of both groups indicates a reasonable distribution that can be considered acceptable for generalizing to the target population.

**Table 2.** Age distribution.

Age	n	%
22–30	59	12.3
31–40	203	42.3
41–50	139	29.0
50+	79	16.5
Total	480	100.0

Table 2 illustrates the age distribution of the study sample across four age groups. The largest proportion of participants fell within the 31–40 age range ($n = 203$, 42.3%), followed by the 41–50 age group ($n = 139$, 29.0%), participants aged 50 and above ($n = 79$, 16.5%), and those aged 22–30 ($n = 59$, 12.3%). These findings indicate that the sample was predominantly composed of mid-career professionals, with approximately 71.3% of participants being between the ages of 31 and 50. The relatively limited representation of younger teachers (22–30) may reflect the structural characteristics of teacher recruitment and tenure processes in Turkey, where entry into permanent positions often occurs in the late twenties or early thirties.

Table 3. Distribution by professional seniority.

Professional Seniority	n	%
0–5 years	33	6.9
6–10 years	54	11.3
11–15 years	129	26.9
16–20 years	113	23.5
21+ years	151	31.5
Total	480	100.0

Table 3 presents the professional seniority distribution of the study sample. The data reveal that the largest group of participants had 21 or more years of professional experience ($n = 151$, 31.5%), followed by those with 11–15 years ($n = 129$, 26.9%), 16–20 years ($n = 113$, 23.5%), 6–10 years ($n = 54$, 11.3%), and 0–5 years ($n = 33$, 6.9%). The sample was heavily skewed toward experienced teachers (81.9% with 11+ years of service). The underrepresentation of early-career teachers (0–5 years, 6.9%) aligns with the age distribution reported in Table 2 and is consistent with the broader demographic profile of the teaching workforce in Turkey, where a significant proportion of currently active teachers were recruited during large-scale hiring periods in the 1990s and early 2000s.

Table 4. Distribution by educational status.

Educational Status	n	%
Bachelor's Degree	400	83.3
Master's/Doctorate	80	16.7
Total	480	100.0



Table 4 displays the educational status distribution of the study sample. The data indicate that the substantial majority of participants held a bachelor's degree as their highest level of educational attainment ($n = 400$, 83.3%), while the remaining 80 participants (16.7%) had completed postgraduate education at the master's or doctoral level. This distribution reflects the prevailing educational profile of the teaching workforce in Turkey, where undergraduate-level preparation has historically constituted the primary entry requirement for the profession, and postgraduate qualification rates among practicing teachers remain comparatively modest (MoNE, 2023; Yükseköğretim Kurulu [YÖK], 2022).

The relatively low proportion of participants with postgraduate degrees may have implications for the study variables. Prior research suggests that advanced educational attainment is associated with enhanced capacity for self-directed learning, reflective practice, and proactive engagement with professional development activities — all of which are conceptually aligned with leisure time resourcefulness as examined in the present study (Merriam & Bierema, 2014). Moreover, teachers with postgraduate qualifications may demonstrate differential patterns of organizational happiness and job satisfaction, given their potentially elevated professional expectations and self-efficacy perceptions (Caprara et al., 2006; Skaalvik & Skaalvik, 2014). These considerations suggest that educational status warrants careful attention as a control variable in the hierarchical regression analyses conducted in subsequent sections of this study.

Table 5. Branch distribution ($n = 480$)

Branch	n	%
Primary School Teacher	99	20.6
Turkish	36	7.5
English	49	10.2
Literature	31	6.5
Social Studies	24	5.0
Mathematics	37	7.7
Science	27	5.6
Physics	11	2.3
Biology	10	2.1
Music	9	1.9
Preschool	18	3.8
Other*	129	26.9
Total	480	100.0

*Other includes: History, Geography, Chemistry, Philosophy, Physical Education, Visual Arts, Guidance, Religious Culture, Technology, Computer Science, German, and other branches.

Table 5 presents the distribution of participants according to their teaching branch or subject specialization. The sample encompassed a broad range of disciplines, reflecting considerable professional diversity. The largest single category was the "Other" grouping ($n = 129$, 26.9%), which comprised teachers from branches including History, Geography, Chemistry, Philosophy, Physical Education, Visual Arts, Guidance, Religious Culture, Technology, Computer Science, German, and additional specializations. Among individually reported branches, Primary School Teachers constituted the most represented group ($n = 99$, 20.6%), followed by English language teachers ($n = 49$, 10.2%),



Mathematics teachers ($n = 37$, 7.7%), Turkish language teachers ($n = 36$, 7.5%), Literature teachers ($n = 31$, 6.5%), Science teachers ($n = 27$, 5.6%), Social Studies teachers ($n = 24$, 5.0%), Preschool teachers ($n = 18$, 3.8%), Physics teachers ($n = 11$, 2.3%), Biology teachers ($n = 10$, 2.1%), and Music teachers ($n = 9$, 1.9%). The wide disciplinary spread of the sample is a notable methodological strength, as it enhances the representativeness of the findings across the broader teaching workforce rather than confining the study to a single subject domain.

Table 6. Branch group distribution.

Branch Group	n	%
Verbal (Social Sciences & Language-Based)	258	53.8
Quantitative (Mathematics & Science-Based)	99	20.6
Other Branches*	123	25.6
Total	480	100.0

Table 6 presents the distribution of participants according to aggregated branch groupings, in which individual teaching specializations were consolidated into three broader categories to facilitate comparative analysis. The largest group consisted of teachers from verbal disciplines, encompassing social sciences and language-based branches ($n = 258$, 53.8%), followed by teachers classified under other branches ($n = 123$, 25.6%), and those from quantitative disciplines, including mathematics and science-based branches ($n = 99$, 20.6%).

Data Collection Tools

A three-part questionnaire was distributed face-to-face to voluntarily participating teachers. Ethical approval was obtained from Çanakkale Onsekiz Mart University Ethics Committee, and official permission was granted by the Çanakkale Provincial Directorate of National Education.

Organizational Happiness Scale for Teachers

The Organizational Happiness Scale for Teachers (Çakır & Yavuz, 2022) consisted of 31 items across three sub-dimensions: Managerial Behaviors (18 items), Human Relations (5 items), and Feelings Toward the School (8 items). Response options range from *Not at All* (1) to *Completely* (5). Cronbach's alpha coefficients were .984, .893, .935, and .967 for the sub-dimensions and overall scale, respectively.

Table 7. Organizational Happiness Scale score interpretation ranges.

Score Range	Level	Interpretation
1.00–1.80	Very Low	Not at All
1.81–2.60	Low	Very Little
2.61–3.40	Moderate	Partially
3.41–4.20	High	Mostly
4.21–5.00	Very High	Completely

Table 7 presents the score interpretation ranges adopted for the Organizational Happiness Scale in the present study. The scale operates on a five-point Likert-type response format, with total mean scores classified into five discrete levels: Very Low (1.00–1.80), Low (1.81–2.60), Moderate (2.61–3.40), High (3.41–4.20), and Very High (4.21–5.00). Each level is accompanied by a qualitative descriptor reflecting



the degree to which organizational happiness is experienced, ranging from "Not at All" at the lowest end to "Completely" at the highest.

Table 8. Descriptive statistics for the Organizational Happiness Scale.

Statistic	Value	SE
Mean	3.77	.044
Variance	.922	—
Standard Deviation	.960	—
Skewness	.152	.111
Kurtosis	-.713	.222

Table 8 presents the descriptive statistics for the Organizational Happiness Scale obtained from the full study sample ($n = 480$). The mean score of 3.77 ($SE = .044$, $SD = .960$) indicated that participants reported a generally **high** level of organizational happiness, as determined by the score interpretation framework presented in Table 7 (3.41–4.20 range). The obtained variance of .922 suggests a moderate degree of dispersion around the central tendency, reflecting meaningful individual variation in participants' organizational happiness perceptions despite the overall positive orientation of the distribution.

Assessment of distributional normality was conducted through examination of the skewness and kurtosis statistics. The skewness value of .152 ($SE = .111$) indicates a negligible positive skew, while the kurtosis value of $-.713$ ($SE = .222$) reflects a slightly platykurtic distribution. Both values fall well within the conventionally accepted thresholds for normality (skewness and kurtosis values within the ± 2.0 range are generally considered indicative of acceptable normality for parametric analyses; Field, 2018; Tabachnick & Fidell, 2019). These findings confirm that the distributional assumptions underlying the parametric statistical procedures employed in subsequent analyses — including Pearson correlation and hierarchical multiple regression — are satisfactorily met.

Taken together, the descriptive statistics presented in Table 8 suggest that the teacher participants in the present study experienced organizational happiness at a level above the scale midpoint, which may reflect relatively favorable perceptions of workplace well-being within the sampled school contexts. Nevertheless, the notable standard deviation (.960) warrants attention, as it indicates that a non-trivial proportion of participants reported substantially lower or higher scores than the sample mean, underscoring the importance of examining potential demographic and organizational predictors of this variability in the inferential analyses that follow.

Leisure Skills Scale

The Leisure Skills Scale (Petrou & Bakker, 2016), adapted into Turkish by Sürücü and Ertan (2020), consisted of 9 items with a single-factor structure ($\alpha = .845$; test-retest reliability $r = .811$, $p < .05$).

Table 9 presents the score interpretation ranges established for the Leisure Skills Scale employed in the present study. Consistent with the scoring framework applied to the Organizational Happiness Scale (Table 7), the Leisure Skills Scale utilizes a five-point Likert-type response format, with obtained mean scores classified into five hierarchically ordered levels: Very Low (1.00–1.80), Low (1.81–2.60), Moderate (2.61–3.40), High (3.41–4.20), and Very High (4.21–5.00). The qualitative descriptors associated with each level — ranging from "Not at All" to "Completely" — provide an accessible



interpretive language for situating participants' leisure skill perceptions along a continuum of experiential intensity.

Table 9. Leisure Skills Scale score interpretation ranges.

Score Range	Level	Interpretation
1.00–1.80	Very Low	Not at All
1.81–2.60	Low	Very Little
2.61–3.40	Moderate	Partially
3.41–4.20	High	Mostly
4.21–5.00	Very High	Completely

The classification scheme follows the equal-interval banding convention widely adopted in Likert-scale research within the field of educational sciences, whereby the full response range is partitioned into equal segments of 0.80 scale units to yield interpretable categorical thresholds (Büyükoztürk et al., 2020). The application of an identical interpretive structure across both scales used in the present study enhances the internal consistency of the descriptive reporting framework and facilitates direct comparison of mean score levels between the Leisure Skills Scale and the Organizational Happiness Scale in subsequent analyses.

Table 10. Descriptive statistics for the Leisure Skills Scale.

Statistic	Value	SE
Mean	3.56	.037
Variance	.683	—
Standard Deviation	.826	—
Skewness	-.044	.222
Kurtosis	-.274	.441

Table 10 presents the descriptive statistics for the Leisure Skills Scale obtained from the full study sample ($N = 480$). The mean score of 3.56 ($SE = .037$, $SD = .826$) places the sample within the **high** level of leisure skills, as defined by the score interpretation framework presented in Table 9 (3.41–4.20 range). This finding indicates that, on average, the teacher participants demonstrated a relatively well-developed capacity for leisure time resourcefulness, reporting that they are able to engage in and benefit from leisure activities at a level that largely aligns with the higher end of the scale's moderate-to-high continuum. The obtained variance of .683 and standard deviation of .826 suggest a comparatively narrower dispersion of scores relative to the Organizational Happiness Scale ($SD = .960$, Table 8), indicating somewhat greater homogeneity in participants' self-reported leisure skills.

Examination of the distribution of Leisure Skills scores provides robust support for the assumption of normality. The skewness value of $-.044$ ($SE = .222$) is negligibly close to zero, indicating a virtually symmetric distribution, while the kurtosis value of $-.274$ ($SE = .441$) reflects a marginally platykurtic but essentially normal distributional shape. Both values fall comfortably within the accepted thresholds for normality in parametric research contexts (± 2.0 ; Field, 2018; Tabachnick & Fidell, 2019), confirming the appropriateness of employing parametric inferential procedures — including Pearson correlation analysis and hierarchical multiple regression — in the subsequent stages of data analysis.



Taken together, the descriptive findings presented in Table 10 suggest that the participating teachers possessed a meaningful degree of competence in utilizing their leisure time resourcefully. The above-midpoint mean score, combined with a relatively constrained standard deviation, implies that high leisure skill levels were broadly characteristic of the sample rather than attributable to a small subset of participants. This distributional profile provides a favorable analytic foundation for examining the predictive relationship between leisure skills and organizational happiness, as explored in the inferential analyses that follow.

Data Analysis

Data were analyzed using SPSS 26. Normality was evaluated using skewness and kurtosis coefficients. Pearson product-moment correlation analysis and simple linear regression analysis were conducted to examine the relationship between variables.

RESULTS

Relationship Between Leisure Skills and Organizational Happiness

Pearson product-moment correlation analysis was conducted to determine the relationship between teachers' leisure skills and organizational happiness. Results are presented in Table 11.

Table 11. Correlation between leisure skills and organizational happiness.

Variable	1	2
1. Organizational Happiness	—	.22**
2. Leisure Skills	.22**	—

Note. ** $p < .001$.

Results indicated a positive and statistically significant relationship between organizational happiness and leisure skills, $r_{(478)} = .22$, $p < .001$, indicating that higher leisure skills are associated with greater organizational happiness. According to Cohen's (1988) criteria, this represents a small but meaningful effect size.

Pearson correlation analysis was also conducted for the sub-dimensions of organizational happiness. Results are presented in Table 12.

Table 12. Correlations between leisure skills and organizational happiness sub-dimensions

Sub-dimension	r	p	n
Managerial Behaviors	.21**	< .001	480
Human Relations	.30**	< .001	480
Feelings Toward School	.23**	< .001	480
Organizational Happiness (Overall)	.22**	< .001	480

Note. ** $p < .001$.

The strongest correlation was found between leisure skills and the human relations sub-dimension, $r_{(478)} = .30$, $p < .001$. Significant positive correlations were also found with feelings toward the school ($r = .23$) and managerial behaviors ($r = .21$).

Predictive Power of Leisure Skills on Organizational Happiness

Simple linear regression analysis was conducted to examine whether leisure skills predict organizational happiness. Regression coefficients are presented in Table 13, and the model summary in Table 14.



Table 13. Regression coefficients for predicting organizational happiness from leisure skills

Model	B	SE B	β	t	p
Constant	2.86	.17	—	16.50	< .001
Leisure Skills	.26	.05	.22	4.82	< .001

Note. Dependent variable: Organizational Happiness.

Table 13 presents the unstandardized and standardized regression coefficients derived from the simple linear regression model examining the extent to which leisure skills predict organizational happiness among the study participants. The results indicate that leisure skills emerged as a statistically significant positive predictor of organizational happiness ($B = .26$, $SE = .05$, $\beta = .22$, $t = 4.82$, $p < .001$). The unstandardized regression coefficient ($B = .26$) indicates that for each one-unit increase in leisure skills scores, organizational happiness scores are predicted to increase by .26 units, holding all other factors constant. The standardized coefficient ($\beta = .22$) further reveals that a one standard deviation increase in leisure skills is associated with a .22 standard deviation increase in organizational happiness, providing a scale-independent measure of the strength of this predictive relationship.

The constant term ($B = 2.86$, $SE = .17$, $t = 16.50$, $p < .001$) represents the predicted organizational happiness score when leisure skills are held at zero, and while not directly interpretable in substantive terms given the bounded nature of the scale, its statistical significance confirms the overall stability of the regression model. The statistical significance of the leisure skills predictor at the $p < .001$ level provides strong evidence against the null hypothesis of no linear relationship between the two constructs, and is consistent with the positive bivariate correlation reported in earlier analyses.

Table 14. Simple linear regression model summary.

R	R ²	Adj. R ²	SE	F(1, 478)	p
.22	.046	.044	.94	23.25	< .001

Leisure skills were a statistically significant predictor of organizational happiness, $F_{(1, 478)} = 23.25$, $p < .001$. The model accounted for 4.6% of the variance in organizational happiness ($R^2 = .046$, adjusted $R^2 = .044$). The positive regression coefficient ($\beta = .22$) confirms that increases in leisure skills are associated with higher organizational happiness.

DISCUSSION, CONCLUSIONS, and SUGGESTIONS

Quantitative data obtained from 480 teachers in Çanakkale province were analyzed using SPSS 26. Descriptive statistics, t-tests, ANOVA, Pearson correlation, and regression analyses were conducted to examine the research questions.

Leisure Skills Levels

Teachers' leisure skills were generally high. Previous research suggests that the benefits derived from leisure activities may vary depending on the type of engagement. In the present study, ANOVA results indicated no statistically significant differences in leisure skills according to gender, age, educational status, professional seniority, branch, or school type. These findings suggest that teachers' leisure skills are relatively independent of demographic and institutional variables. Randall et al. (2021) reported that physical activity levels among early childhood educators were positively associated with life satisfaction during the COVID-19 pandemic, suggesting that physical activity may support teachers' organizational happiness.



Teachers were observed to have a tendency toward self-improvement, learning, acquiring new skills, and building social relationships in their leisure time. ANOVA results indicated no statistically significant difference in leisure skills levels according to demographic variables such as gender, educational status, professional seniority, age, district, branch, or school type. While no direct study on teachers' leisure skills was found, Heybet (2024) found significant differences related to leisure barriers according to gender, income, and age. Çelik (2024) reported that young women experienced higher levels of enjoyment and happiness from leisure activities. Uz (2022) found significant differences in daily leisure time and leisure evaluation variety along with gender. Kaya (2020) reported that teachers' participation in leisure activities was low, with unmarried and female teachers participating more, and teachers with children less so. These findings suggest that teachers' leisure skill behaviors are relatively independent of individual and institutional variables.

Organizational Happiness Levels

Teachers reported the highest organizational happiness levels in the “Human Relations” sub-dimension, followed by “Feelings Toward the School” and “Managerial Behaviors.” Analyses revealed a significant difference by age. Post-hoc tests showed that teachers aged 50 and over reported significantly higher organizational happiness than those aged 31–40. This finding suggests that professional experience and seniority may contribute to higher levels of organizational happiness, as well as job satisfaction and organizational belonging. Bayraktar and Girgin (2020) and Fırat (2025) emphasized the ineffectiveness of demographic variables on general happiness levels, while Anastasiou and Belios (2020) found that job satisfaction increases with age, supporting our finding. However, Hasanati and Istiqomah (2024) did not confirm happiness differences between age groups, suggesting that context-specific factors may play a role. Additionally, Aytaç and Usta (2023) emphasized that leadership style and teachers' organizational happiness interact, noting that principals' leadership styles shape the relationship with happiness.

A significant difference was found by district as a post-hoc test result, with teachers in the Lapseki district reporting significantly lower organizational happiness compared to teachers in all other districts. Kaygusuz et al. (2021) reported that teachers' satisfaction levels may differ by district and may stem from physical and social facilities and provincial directorates of national education. Keçeli (2022) reported a positive relationship between teachers' school climate perceptions and their organizational happiness levels. Martínez-Arroyo and Valenzo-Jiménez (2020) noted that school climate influences motivation. This finding points to the effect of organizational climate, administrative practices, and social facilities in the school's location on happiness perceptions.

Gender, educational level, professional seniority, branch, and school type variables were found to create no statistically significant difference on teachers' organizational happiness perceptions. These findings are consistent with Bulut (2015), who demonstrated the limited effect of demographic variables on organizational happiness. Similarly, Bayraktar and Girgin (2020) reported that teachers' organizational happiness levels were high and showed no significant difference by demographic variables. Özdemir and Kış (2019) found that teachers' branch, relationships with other teachers, school size, and position within the school could be associated with differences in happiness. Özbilen et al. (2024) explained teachers' psychological happiness and job satisfaction through higher educational levels, while Elmas and Kaya (2021) highlighted that quality of work life is a strong determinant of happiness. Vale et al. (2025) emphasize that organizational factors such as leadership, school culture, personal skills, and sense of belonging shape teacher happiness more than individual characteristics such as gender or seniority.



Correlation and Regression Findings

Pearson correlation analysis revealed a positive and significant relationship between leisure skills and organizational happiness, with a particularly strong relationship observed between leisure skills and the 'human relations' sub-dimension. This finding suggests that teachers' social skills developed outside of work can enhance job satisfaction and happiness through organizational relationships. Simple linear regression analysis confirmed that leisure skills is a significant predictor of organizational happiness. However, the explained variance is low, indicating that leisure skills alone have a limited effect on organizational happiness, and that multiple factors must be considered together (Field, 2018; Çakır & Yavuz, 2022).

The significant and positive relationship between leisure skills and organizational happiness is consistent with positive psychology frameworks. According to Seligman's (2011) PERMA model, teachers' engagement in meaningful leisure activities can support the dimensions of positive emotions, engagement, and accomplishment, thereby contributing to their professional well-being. This also supports Keyes' (2005) theoretical approach, which emphasizes that experiences in non-work life can support work-related happiness.

This finding is consistent with studies reporting similar results in the literature. Sonnentag and Fritz (2007) demonstrated that post-work mental recovery and skill-development-oriented leisure activities significantly support employees' psychological happiness. Similarly, Caldwell (2005) showed that the therapeutic benefits of leisure result in reduced stress and increased life satisfaction. Abós et al. (2019) experimentally demonstrated that a group-based physical activity intervention positively affected teachers' work performance, job satisfaction, and happiness.

Theoretical Implications: Serious Leisure Theory

Stebbins' (2009) Serious Leisure Theory provides an important framework for the results of this research. According to Stebbins (2015), 'serious leisure' activities pursued during leisure time with discipline, effort, and deep meaning develop skill, self-efficacy, and social capital in participants. The strong correlation found between leisure skills and the 'human relations' sub-dimension suggests that the social networks and collaborative skills acquired through leisure activities also have a positive impact on interpersonal relationships in the workplace. As Stebbins (2009) describes, serious leisure participants develop a shared 'ethical code' and community consciousness, reaching higher levels of belonging and happiness even in organizational contexts. Furthermore, the durable benefits of serious leisure, including self-efficacy and psychological resilience, when evaluated alongside high organizational happiness scores, suggest that serious leisure practice produces positive outcomes at both individual and organizational levels. This parallels Luthans et al.'s (2007) findings of a positive relationship between psychological capital components and job satisfaction. Research indicates that sociodemographic variables play a significant role in shaping the relationship between leisure participation and happiness.

Kontogianni et al. (2021) demonstrated that age, education level, and perceived economic satisfaction were significantly associated with the frequency and type of leisure involvement among adults, highlighting the role of structural inequalities in leisure access. Similarly, Ahn and Song (2021) reported that demographic, educational, and economic factors are determinative of individuals' leisure satisfaction levels, with activity type further moderating these associations. Zeng et al. (2025) confirmed that age significantly moderates the relationship between leisure patterns and happiness among older adults, with distinct patterns of association emerging across different age groups.



In contrast, Yoon et al. (2021) reported that despite increasing age and decreasing education and income levels, the relationship between leisure satisfaction and general happiness remained strong. In the present study, demographic variables such as gender, educational level, seniority, and income did not have a significant moderating effect on teachers' organizational happiness; only age and district of service stood out ($p < .05$). This inconsistency may be attributed to several factors. First, teachers are particularly sensitive to organizational processes such as managerial support, workload, and professional solidarity, so demographic differences may be overshadowed by these strong organizational influences. Second, cultural and regional dynamics specific to the school climate in Çanakkale may have neutralized the effect of demographic variables.

According to Deci and Ryan's (2000) self-determination theory, the sense of social belonging is among basic psychological needs, and when this need is met, higher levels of psychological happiness are observed. Therefore, socially oriented leisure activities may increase teachers' satisfaction in their social relationships at work.

Comparative Discussion

The finding that only age and district were associated with significant differences in organizational happiness supports the similar findings of Bayraktar and Girgin (2020). Their study also reported that variables such as gender, branch, and educational level had no significant effect on organizational happiness, but those teachers generally had high happiness levels.

Ataç et al. (2022), in a systematic review analyzing graduate theses on teachers' organizational happiness published in Turkey, emphasized that demographic factors had no significant effect on happiness levels in most studies. Demir and Çobanoğlu (2022) also reported that demographic variables such as gender, age, and seniority did not play a significant moderating role. Tösten et al. (2018) found that organizational socialization perceptions had a strong determining effect on teacher happiness, while demographic differences (gender, years of service) did not lead to significant differences in happiness scores (Vale et al., 2025). These findings suggest that differences in administrative environment and organizational culture across districts may account for the variation in organizational happiness levels observed in the present study.

Findings of Kelly et al. (2020) suggest that time allocated to leisure activities supports career development while simultaneously strengthening individuals' self-efficacy perceptions. Regular participation in structured leisure activities serves as a critical psychological recovery mechanism for working individuals. Sonnentag and Fritz (2007) identified four core recovery experiences during off-job time - psychological detachment from work, relaxation, mastery, and a sense of personal control - and demonstrated that individuals who actively engage in these experiences during leisure report significantly higher levels of psychological well-being, lower emotional exhaustion, and greater capacity to manage occupational stress. Particularly, mastery experiences pursued through leisure activities, such as learning new skills or engaging in personally meaningful challenges, enable individuals to replenish cognitive and emotional resources depleted by work demands. These findings suggest that the quality and intentionality with which individuals structure their leisure time, rather than the mere quantity of free time available, constitutes the decisive factor in deriving psychological recovery and sustained well-being benefits from non-work activities. Moreover, individuals who integrate leisure activities into their daily routines, sustaining them with commitment and enthusiasm, positively affect both their social bonds and their organizational engagement and happiness levels (Tsaur et al., 2021).



Bhatti et al. (2011) demonstrated in a quantitative study of teachers that weekly regular physical activity significantly increased job satisfaction and reduced job-related stress. Denovan and Macaskill's (2017) qualitative research showed that teachers structured their leisure activities under three main themes: (1) serving as a stress buffer, (2) transforming negative emotions into positive ones, and (3) alleviating long-term stress burden through distraction and mental renewal. These thematic findings support the positive relationship identified in this study between leisure skills and organizational happiness.

Conclusion

The present study demonstrated that teachers' leisure skills were positively and significantly related to organizational happiness, with the strongest association observed in the "Human Relations" sub-dimension. Although leisure skills emerged as a statistically significant predictor in the regression model, it explained a modest 4.6% of the variance in organizational happiness. This limited explanatory power is theoretically expected given the multifactorial nature of organizational happiness, which is also shaped by managerial support, school climate, and organizational trust. Future research should employ multilevel, longitudinal, and mixed-methods designs to examine the interplay of individual and structural determinants. It is recommended that practitioners develop in-service training programs and social activities to enhance teachers' leisure skills, and school administrators in districts with lower happiness scores (e.g., Lapseki) should be supported through leadership development and regional improvement initiatives.

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Ethics and Conflict of Interest

The authors declare that ethical guidelines were followed throughout the research process. The authors also declare that there is no conflict of interest regarding this study.

Author Contribution

All authors contributed equally to the research.

Data Availability

The data that support the findings of this study are available on request from the corresponding author.

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TIJSEG



INDUSTRY 4.0 READINESS OF TVET INSTITUTIONS IN SUB-SAHARAN AFRICA: A COMPARATIVE ASSESSMENT OF CURRICULUM ALIGNMENT, INFRASTRUCTURE, AND INSTRUCTOR COMPETENCIES

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Abstract

The rapid uptake of Industry 4.0 technologies across African manufacturing, agribusiness, and logistics sectors has created an urgent question that TVET systems have been slow to answer: are technical training institutions prepared to produce the kind of graduates that these sectors now require? This article presents findings from a comparative institutional assessment conducted across forty-two TVET institutions in Kenya, Ghana, and Nigeria. The study evaluated readiness across three core dimensions — curriculum alignment with Industry 4.0 competency requirements, physical and digital infrastructure availability, and instructor technical competency in automation and digital production systems. A composite Industry 4.0 Readiness Index was constructed using institutional survey data, a practical instructor skills assessment, classroom observation, and structured interviews with 186 instructors and 312 recent graduates. The mean readiness score across the sample was 31.4 out of 100. Urban flagship institutions averaged 47.2 while rural and community-based colleges averaged just 19.6. Curriculum misalignment is the single largest contributor to the readiness gap, followed by instructor competency deficits and infrastructure shortfalls. The findings indicate that conventional curriculum revision processes are far too slow for the pace of Industry 4.0 change, that instructor retraining needs are significantly underestimated in national TVET plans, and that geographic concentration of adequately resourced institutions is producing a two-tier training system that risks deepening existing inequalities. The paper draws on these findings to offer a set of specific and actionable policy recommendations for TVET authorities, ministries of education, and development partners operating in the Sub-Saharan context.

Keywords: Industry 4.0, TVET readiness, Sub-Saharan Africa, curriculum alignment, instructor competency, skills gap, Kenya, Ghana, Nigeria.

INTRODUCTION

Walk into most TVET workshops in Nairobi, Accra, or Lagos and the scene is not dramatically different from what you would have found twenty years ago. Lathes, welding benches, and sewing machines are still the dominant equipment. Instructors who trained in analogue industrial environments continue teaching the syllabi they inherited. And yet the factories, agriprocessing plants, and logistics firms where many of these graduates end up are quietly installing collaborative robots, cloud-connected quality sensors, and AI-assisted scheduling systems. The gap between what training institutions produce and what industry now demands has not merely widened — it has changed in character.

Industry 4.0 — a term describing the convergence of cyber-physical systems, the Internet of Things, advanced robotics, big data analytics, additive manufacturing, and artificial intelligence into modern industrial production — is no longer a distant prospect for Sub-Saharan Africa (Schwab, 2016; Xu et



al., 2018). It is already operating in the factories and processing plants where TVET graduates seek employment. Kenya's flower export sector uses precision climate control and cold-chain monitoring as standard. Nigeria's pharmaceutical industry is rolling out automated dispensing and batch traceability systems. Ghana's cocoa processing companies are piloting sensor-based fermentation management. These are not experimental pilots — they are operational realities that are reshaping the skill requirements of entry-level technical workers right now.

The question this article takes seriously is not whether Industry 4.0 is arriving in Sub-Saharan Africa. It already has. The question is whether the region's TVET institutions are equipped to train workers who can operate, maintain, and improve the systems that this industrial transformation is deploying. To investigate this rigorously, we developed an Industry 4.0 Readiness Index (I4RI) and applied it to forty-two TVET institutions across Kenya, Ghana, and Nigeria — producing what is, to our knowledge, the most geographically and institutionally diverse comparative assessment of this kind yet conducted in the region (Allais, 2020; McGrath, 2018).

The three countries were deliberately chosen to represent different points on the TVET reform spectrum. Kenya has implemented sustained curriculum reform since 2017 under its Competency-Based Education and Training framework and has explicit Industry 4.0 language in its national TVET policy documents (Technical and Vocational Education and Training Authority Kenya, 2022). Ghana undertook a major TVET reclassification in 2016 and has invested significantly in upgrading its technical universities, though implementation at the college level has been inconsistent. Nigeria runs the largest TVET system by enrolment in Sub-Saharan Africa but has struggled with chronic underfunding and infrastructure that in many institutions has not been meaningfully updated in decades (National Board for Technical Education Nigeria, 2021). Together, these three systems offer a representative and instructive picture of the region's challenges.

The article proceeds as follows. Section 2 reviews the relevant literature on Industry 4.0 and TVET in developing country contexts. Section 3 describes the methodology and the construction of the I4RI. Section 4 presents the key findings. Section 5 discusses the findings and draws out their policy implications. Section 6 contains the dedicated policy recommendations. Section 7 concludes.

Literature Review

The Changing Shape of Industrial Skill Requirements

Industry 4.0 has changed the nature of technical work in ways that matter profoundly for how TVET programmes are designed (Acemoglu & Restrepo, 2018; World Economic Forum, 2020). Previous waves of industrial automation primarily displaced routine physical tasks — machine tending, precision assembly, repetitive material handling — while increasing the premium on craft knowledge, manual dexterity, and experienced judgement. That relationship was broadly favourable to TVET. An experienced welder or machinist who had developed fine motor skills through years of practice represented a form of human capital that machines could not easily replicate.

Industry 4.0 disrupts this dynamic. Collaborative robots, CNC systems, and automated inspection equipment reduce the value of manual precision while raising the demand for workers who can programme, monitor, configure, and diagnose these technologies. A machinist who cannot read a G-code programme or interpret a machine alarm log is of substantially less value to a modern production environment than one who can, regardless of how refined their manual technique is (Brynjolfsson & McAfee, 2014; Goos et al., 2014). The skills that now differentiate productive workers in Industry 4.0 environments fall into three broad clusters: digital literacy in both consumer computing and industrial



data systems; systems thinking — the capacity to understand how automated components interact and fail; and adaptive problem-solving in situations that cannot be fully anticipated in a training curriculum.

It is worth being precise about what Industry 4.0 readiness means in the Sub-Saharan African context. Technology adoption in African industry is uneven and sector-specific (Banga, 2019). A maize milling cooperative in rural western Kenya faces different demands from a Nairobi electronics assembly plant supplying an export market. TVET readiness assessments that treat "Industry 4.0" as a single uniform requirement risk producing policy recommendations that are well calibrated to the needs of a small number of high-technology urban employers while being largely irrelevant to the much larger number of graduates who will work in less digitally intensive environments. This study's assessment framework was designed with that complexity in mind.

Competency-Based Training and Its Limits in African TVET

Competency-Based Training was adopted by Kenya, Ghana, and several other African countries as the primary mechanism for improving curriculum alignment with labour market requirements (Republic of Kenya, 2013; Mumo & Mwangi, 2021). The logic is straightforward: if training outcomes are defined in terms of competencies that industry has validated, then training will be more relevant to real jobs. In principle, this should make TVET systems more responsive to technological change. In practice, the competency standard revision process has proven too slow, too expensive, and too politically cumbersome to keep pace with Industry 4.0.

Kenya's competency standards, for example, typically require two to four years to move from a needs assessment through stakeholder consultation, validation workshops, and formal gazette. A standard gazetted today describes the technology environment of 2021 or 2022. Given the pace at which industrial automation equipment, software platforms, and data management systems are evolving, a four-year revision cycle produces standards that are obsolescent the moment they are published (Boateng, 2012; Akyeampong, 2010).

Several researchers have documented the gap between the stated intentions of CBT reform and its implementation reality in African TVET institutions. Instructors frequently lack the industry experience needed to deliver competency modules in the spirit they were designed. Assessment instruments tend to test theoretical recall rather than practical competency. And the equipment needed to demonstrate the relevant skills — PLC trainers, CNC workstations, 3D printers, industrial sensors — is either absent or present in only a handful of flagship institutions that serve a small minority of TVET students (Boateng, 2012; Akyeampong, 2010).

Instructor Competency: The Human Side of the Gap

The quality of technical instruction depends on instructors who have current, applied knowledge of what they are teaching (Hanushek, & Woessmann, 2015; Kluve, 2010). This has always been true, but it becomes particularly demanding in the Industry 4.0 context because the relevant knowledge is changing faster than any previous phase of industrial development. An instructor who completed a credible digital fabrication programme five years ago may already be working with partially outdated knowledge in the most dynamic technology areas. There is no established mechanism in any of the three countries studied for systematic, ongoing technical updating of TVET instructors at the pace that Industry 4.0 change requires.

Most instructor development programmes in Sub-Saharan Africa focus on pedagogy — delivery skills, assessment methods, classroom management — rather than technical content updating (Card et al., 2018). The few technical upgrading programmes that exist are typically one-off workshops funded by development partners, delivered once and not repeated. They leave instructors better informed about



Industry 4.0 as a concept but rarely better equipped to actually teach the practical skills involved. The structural problem is that TVET instructor salaries are not competitive with industry salaries for people with current Industry 4.0 technical skills, so the TVET system tends to retain instructors with outdated knowledge while those with current knowledge stay in or move to industry.

Infrastructure and Connectivity

Physical infrastructure deficits in Sub-Saharan TVET institutions have been documented extensively in the comparative education literature (Atchoarena & Delluc, 2002; World Bank, 2022). Unreliable power supply, inadequate workshop space, and ageing equipment are longstanding problems that predate Industry 4.0. The specific infrastructure requirements for Industry 4.0 training add a new dimension to this challenge: reliable broadband connectivity at speeds sufficient for cloud-based learning platforms and simulation software, programmable automation equipment, licensed CAD/CAM and data analysis software, and backup power generation sufficient to maintain a computing environment during interruptions. None of these is cheap, and several are logistically difficult to sustain in secondary cities and rural areas (International Energy Agency. 2022).

What makes the infrastructure question particularly frustrating in the African TVET context is that equipment is sometimes present but not functional. Development partner donations and government procurement exercises periodically bring Industry 4.0 relevant equipment into institutions that lack the instructors, software licences, maintenance budgets, or power reliability to use it effectively. The result is a category of asset that features positively in institutional inventories but contributes nothing to actual training — a distinction that aggregate infrastructure statistics consistently fail to capture.

METHOD

Sample Design and Study Sites

The study covered forty-two TVET institutions: fifteen in Kenya, fourteen in Ghana, and thirteen in Nigeria. Within each country, institutions were stratified by location (urban, peri-urban, rural), institutional level (national polytechnic or technical university; regional technical college; community-based TVET centre), and funding source (public, private, public-private). The stratification was designed to ensure that the sample captured the full range of institutional contexts, rather than over-representing the well-resourced flagship institutions that feature disproportionately in the existing TVET case study literature (Creswell & Creswell, 2018).

Site selection within each stratum was purposive, based on programme diversity, TVET authority registration status, and availability of enrolment data. Final selection was validated with each country's national TVET authority to ensure no significant institutional type was absent from the sample. Fieldwork was conducted between March and October 2023 by the lead researcher and two trained research assistants per country.

The Industry 4.0 Readiness Index

The I4RI is a composite index built from indicators across four dimensions: curriculum alignment, instructor competency, infrastructure, and institutional governance and partnerships. Table 1 presents the dimensions, sub-indicators, and weightings. Dimension weights were determined through an expert consultation involving eighteen TVET specialists, industry representatives, and technology policy researchers, using a modified Delphi process to build consensus on relative importance (Patton, 2015).

**Table 1.** I4RI Dimensions, Sub-indicators and Weightings.

Dimension	Key Sub-indicators	Weight
Curriculum Alignment	I4.0 content coverage in modules; industry validation date; revision frequency; employer-validated outcomes	30%
Instructor Competency	Digital literacy assessment; practical I4.0 skills test; industry experience; professional development recency	28%
Infrastructure	Digital equipment availability; connectivity speed; power reliability; software licences; workshop condition	27%
Governance and Partnerships	Active industry advisory board; instructor secondment programme; graduate tracer system; employer feedback mechanisms	15%
Total	—	100%

Data Collection

Four instruments were used. First, a structured institutional survey of eighty-nine items, administered to the principal or academic registrar of each institution, covering curriculum documentation, staff qualifications, equipment inventories, and partnership arrangements. Second, a practical skills assessment administered to a random sample of instructors at each institution, testing competency in four Industry 4.0 domains: basic PLC programming, CAD file creation and modification, interpretation of data from a simulated production monitoring dashboard, and diagnosis of a fault in a networked industrial sensor setup. Third, structured interviews with 186 instructors and 312 graduates who had completed their programmes within the preceding thirty-six months. Fourth, structured classroom and workshop observations at each institution using a standardised observation protocol (Patton, 2015).

Analysis

Quantitative data were analysed using descriptive statistics and mixed linear regression to identify institutional predictors of I4RI scores. Qualitative data from interviews and observations were subjected to thematic analysis using a codebook developed both deductively from the I4RI dimensions and inductively refined during early fieldwork. Inter-rater reliability was checked for qualitative coding across country research teams and achieved an average Cohen's kappa of .79, indicating substantial agreement (Cohen, 1960).

RESULTS

Overall I4RI Scores

The mean I4RI score across all forty-two institutions was 31.4 out of 100. No institution in the sample reached 60, which was defined as our conservative threshold for basic readiness — the level at which an institution can reasonably claim to be giving graduates a foundational capacity to work in Industry 4.0 environments. The highest-scoring institution in the sample, a national polytechnic in Nairobi, reached 58.7. The lowest-scoring, a rural community TVET centre in northern Nigeria, scored 9.1. Table 2 presents the summary results by country and institution type.

**Table 2.** I4RI Summary Statistics by Country and Institution Type.

Category	N	Mean	Min	Max
All institutions	42	31.4	9.1	58.7
Kenya	15	36.8	14.2	58.7
Ghana	14	30.1	11.3	52.4
Nigeria	13	26.7	9.1	48.2
National polytechnic / Technical university	9	47.2	38.1	58.7
Regional technical college	20	30.3	17.8	44.1
Community TVET centre	13	19.6	9.1	28.3
Urban location	18	41.3	22.4	58.7
Peri-urban / Rural	24	24.1	9.1	38.6

Several of these figures deserve particular emphasis. The urban-rural gap of 17.2 index points is large enough to represent a structural inequality, not a marginal variation. An institution averaging 24.1 is not offering qualitatively similar training to one averaging 41.3, regardless of whether both issue the same TVET certificate. The community TVET centres, with a mean of 19.6 and a minimum of 9.1, are the institutions that serve predominantly rural and lower-income students. These are the students for whom TVET is the primary — sometimes only — pathway into formal employment, and they are attending the least-equipped institutions in the system (UNESCO-UNEVOC, 2021).

Curriculum Alignment

Curriculum misalignment contributes 38 percent of the total gap between the observed mean I4RI and the maximum possible score, making it the single largest driver of unreadiness. Table 3 presents the detailed sub-indicator results.

Table 3. Curriculum Alignment Sub-indicator Results.

Sub-indicator	Kenya	Ghana	Nigeria	All
Programmes with any I4.0 content	41%	29%	18%	30%
Mean curriculum revision lag (years)	3.8	5.1	6.7	5.2
Programmes with employer-validated outcomes	34%	22%	11%	23%
Graduates rating curriculum as highly relevant	28%	21%	16%	22%
Instructional time allocated to digital skills	8.4%	5.9%	3.8%	6.2%

The average curriculum revision lag of 5.2 years across the sample is a figure that needs to be understood in context. A competency standard validated five years ago describes the technology environment of 2018 or 2019 — before large-scale commercial deployment of collaborative robots in African manufacturing, before cloud-based production management systems became widely accessible to mid-sized firms, and before AI-assisted quality inspection moved from pilot projects to routine deployment. Training to that standard today is, in a meaningful sense, training for a job that no longer exists in its original form (Wesselink et al., 2007).



Only 30 percent of sampled programmes contained any Industry 4.0 content, and in many cases this consisted of a single introductory computing module that predated the Industry 4.0 concept. The Nigerian sample was most concerning: only 18 percent of programmes had any explicit I4.0 content, and the average revision lag of 6.7 years placed most programmes on pre-2017 standards. This is particularly striking given that Nigeria's own national economic policy formally acknowledged Industry 4.0 as a strategic priority in 2017 (Federal Republic of Nigeria., 2017).

Graduate perceptions confirmed what the documentary evidence suggested. Only 22 percent of graduates across the full sample rated their curriculum as highly relevant to the work they were doing or looking for. In interviews, graduates were often candid about specific gaps. One electrical engineering graduate from a technical college in Ghana described the experience this way: "I could read a wiring diagram, but when I arrived at the factory everything was PLC-controlled. They expected me to write ladder logic. I had never heard of it at school." This kind of account was not unusual — it came up in different forms in interviews across all three countries, and it captures the practical consequence of the curriculum lag in a way that aggregate statistics alone do not.

Instructor Competency

The practical skills assessment administered to instructors produced results that were difficult to view as anything other than a crisis. Across the four assessed domains, instructors achieved a mean correct-response or task-completion rate of 34 percent. In PLC programming specifically — arguably the most fundamental Industry 4.0 skill for manufacturing technicians — only 22 percent of instructors could correctly complete even a basic ladder logic task. Table 4 presents the results by domain and country (Moretti, 2012; Fantini et al., 2020).

Table 4. Instructor Competency Assessment — Mean Scores by Domain and Country (% correct or competent).

Assessment Domain	Kenya	Ghana	Nigeria	All
Basic PLC programming	28%	22%	14%	22%
CAD file creation and modification	44%	38%	29%	37%
Production dashboard data interpretation	51%	42%	31%	42%
Networked sensor fault diagnosis	30%	26%	18%	25%
Overall mean	38%	32%	23%	31%

National polytechnic instructors achieved an overall mean of 51 percent, reflecting some exposure to industry-updated content and occasional industry secondments. Community centre instructors averaged 18 percent — a result consistent with many having received no substantive technical updating since qualifying as instructors, sometimes two decades or more previously (Hanushek & Woessmann, 2015). In interviews, instructors were frequently honest about their own gaps and expressed genuine frustration about the lack of accessible upskilling opportunities. One mechanical engineering instructor in Kaduna described attending a one-week "Industry 4.0 awareness" workshop three years earlier, funded by a development partner, as his only exposure to the topic in fourteen years of teaching. A donated PLC trainer at his institution had been unused for two years because no one on staff knew how to operate it with enough confidence to teach from it.

This account captures something important: the problem is not usually instructor unwillingness. It is a structural absence of the sustained, practically oriented technical development programmes that would



allow instructors to genuinely acquire and maintain Industry 4.0 competency. Awareness workshops are not sufficient. Neither is isolated equipment donation without the accompanying instructor capability to use it.

Infrastructure

Infrastructure availability varied enormously across the sample. The most striking finding is that zero percent of community TVET centres possessed any PLC or automation training equipment. This is not surprising to anyone who works in these institutions, but it has a direct and unavoidable implication: if the training environment contains no Industry 4.0 technology, Industry 4.0 skills cannot be meaningfully taught in that environment. Table 5 presents the infrastructure results by institution type (Tilak, 2002).

Table 5. Infrastructure Availability by Institution Type (% of institutions reporting).

Infrastructure Item	Nat. Polytechnic	Regional College	Community Centre
Reliable broadband (>10 Mbps)	78%	31%	8%
Any PLC or automation equipment	89%	25%	0%
Operational 3D printer	56%	10%	0%
Licensed CAD software	67%	18%	5%
Backup power (generator or solar)	100%	45%	15%
Computer-to-student ratio $\geq 1:4$	89%	40%	12%
Any operational simulation software	44%	8%	0%

Power supply reliability emerged as an underappreciated constraint even where equipment existed. A principal at a regional college in Ghana's Brong-Ahafo region described a donated CNC machine that had been installed eighteen months prior but had been used for actual instruction fewer than thirty times in that period, primarily because the combination of frequent power interruptions and instructor anxiety about mid-session failures had made regular use impractical (Gratton, 2011).

Across the full sample, seventeen instances were documented of Industry 4.0 relevant equipment — PLCs, CNC machines, 3D printers — that had been donated but was non-functional at the time of the visit. In twelve of those cases, the reason was either expired software licences, absence of spare parts, or no instructor who could confidently operate the equipment. Equipment donated without accompanying instructor training, software maintenance provision, and a spares budget consistently becomes a non-functional cabinet asset rather than a training resource.

Governance and Industry Partnerships

Governance and partnerships, weighted at 15 percent of the I4RI, functioned in qualitative analysis as a strong mediating factor across the other three dimensions. Institutions with active industry advisory boards, functioning instructor secondment arrangements, and operating graduate tracer systems consistently performed better across all dimensions, not just governance (Porter, 1998).

Only eleven of the forty-two institutions had an industry advisory board that met at least twice a year and whose recommendations had produced observable curriculum or equipment changes in the preceding three years. The majority had boards in name only — assembled for accreditation purposes and inactive between visits. This matters because a functioning advisory board is the primary mechanism through which changes in employer skill requirements can reach curriculum developers promptly. Without one, curriculum revision depends on informal signals — individual instructors noticing that



graduates are reporting skill gaps, or a principal who happens to maintain personal industry relationships — which is slow and unreliable (Porter, 1998).

DISCUSSION, CONCLUSIONS, and SUGGESTIONS

The findings tell a consistent story across three countries and three institution types, and that consistency is itself significant. A mean I4RI of 31.4, with no institution reaching the basic readiness threshold of 60, is not the result of a few poorly performing outliers dragging down a generally adequate system. It reflects a systemic condition in which the TVET sector as a whole is operating at a significant distance from what Industry 4.0 labour markets require (Allais, 2020).

The results also reveal something about which institutions are pulling the average down most sharply and why that matters distributionally. Community TVET centres, with a mean of 19.6, serve disproportionately rural, lower-income students for whom TVET is often the primary available pathway into formal employment. If the gap between what these institutions provide and what Industry 4.0 employers require continues to widen, the TVET system will increasingly function as a mechanism that reproduces existing inequality rather than reduces it. Students who can access urban polytechnics — generally those from more economically advantaged backgrounds — will receive training that is at least partially aligned with modern employer expectations. Those who cannot will receive training that is substantially further behind (UNESCO-UNEVOC, 2021; Acemoglu & Robinson, 2012).

The finding that active industry partnerships mediate performance across all readiness dimensions offers one source of optimism in otherwise challenging results. Institutions that had maintained functional advisory boards and instructor secondment arrangements performed better on curriculum alignment, instructor competency, and infrastructure utilisation than comparable institutions without those arrangements — even when operating with similar budgets. This suggests that institutional leadership choices and governance quality can partially compensate for resource constraints, and that TVET reform programmes focused exclusively on physical resourcing are missing an important lever (Porter, 1998).

It is also worth noting what the findings do not show. They do not show that Industry 4.0 is uniformly and immediately relevant across all Sub-Saharan TVET contexts. Many graduates from the institutions in this sample will work in environments that are not yet significantly transformed by Industry 4.0 technologies. The concern is not that all TVET graduates immediately need to be able to programme collaborative robots. The concern is that the institutions in this study are not even equipping graduates with the foundational digital literacy and systems orientation that will allow them to adapt as the technology environment changes — and that gap will compound over the working lives of the students currently passing through these institutions (Banga, 2019).

Policy Implications

The findings of this study carry specific implications for each of the major actors in the Sub-Saharan African TVET ecosystem. What follows is not a general call for more investment in TVET — a call that has been made many times before without sufficient effect. It is an attempt to identify the specific structural changes that the evidence supports.

For National TVET Authorities: Reform the Curriculum Revision Architecture

The single most important policy change that national TVET authorities could make is to separate fast-moving technology-specific content from stable foundational content within programme qualifications, and to subject them to different revision cycles. Foundational modules in mathematics, technical drawing, materials science, and basic electrical principles change slowly and do not need annual review. Technology-specific modules — covering, for example, PLC programming for a particular family of



controllers, or data interpretation from a specific class of industrial monitoring system — need to be updateable on an annual or biennial basis without triggering a full programme re-accreditation process (Wesselink et al., 2007; OECD, 2019).

Australia and Singapore have introduced short-form credential mechanisms — skill sets and micro-credentials — that allow rapid updating of occupational currency without disrupting whole-qualification architecture. There is no structural barrier to adopting a similar approach in African TVET systems. The barriers are political and bureaucratic: certification agencies and qualification authorities have incentives to maintain full programme review processes because that is where their institutional role and revenue are concentrated. Overcoming those incentives requires deliberate ministerial direction rather than technical consensus.

Industry involvement in curriculum development also needs to become substantive rather than ceremonial. The current model, in which industry is consulted during curriculum review and then has no ongoing role, is insufficient for the pace of technological change. Employer co-investment in curriculum development — where companies contribute both funding and technical expertise to the development of modules covering their technology ecosystem — would create market incentives for timely updating and give employers a stake in the quality of what is produced. Several employer associations in Kenya and Ghana already have the institutional capacity to play this role if TVET authorities create the mechanisms that would make it worthwhile (Mumo & Mwangi, 2021).

For Ministries of Education: Address the Instructor Competency Deficit Structurally

The instructor competency data in this study describe a problem that cannot be solved through occasional professional development workshops. Organising periodic one-week industry awareness events and treating that as instructor upskilling is a well-documented failure mode across the region, and the assessment results confirm it (Card et al., 2018). Three structural interventions are warranted.

First, mandatory industry secondment should become a condition of TVET instructor employment rather than a voluntary enrichment activity. A minimum of four to six weeks per year working in a relevant Industry 4.0 environment would provide instructors with the experiential exposure that no classroom-based training can replicate. Germany and Switzerland have maintained versions of this model for decades, and the evidence from those systems is that instructor industry currency directly and measurably improves training quality. Making secondment a formal employment requirement, with agreed placement arrangements with employer partners, would require regulatory change but is achievable within existing TVET governance frameworks in all three countries studied (Akyeampong, 2010; Kluve, 2010).

Second, national TVET instructor registration should incorporate demonstrated competency in current technology domains as a re-registration condition. Currently, none of the three countries studied has any such requirement. An instructor who qualified in electrical installation twenty years ago retains full teaching registration in that field regardless of how much the underlying technology has changed. Creating a re-registration cycle with a practical competency component aligned to current industry standards would create a systematic, institution-independent mechanism for identifying and addressing obsolescence — and would make the true scale of the upskilling need visible in national workforce data for the first time (Allais, 2014).

Third, regionally distributed Industry 4.0 instructor development centres, co-funded by TVET authorities and industry, would provide accessible, sustained, practically oriented technical development for instructors who cannot access it through their own institutions. The capital cost of equipping such centres is substantial, but substantially lower than equipping every TVET institution individually, and



the specialist expertise needed to deliver quality Industry 4.0 instructor training is more effectively concentrated in a small number of well-resourced centres than diluted across hundreds of institutions with inadequate resources and equipment (ILO, 2020).

For Development Partners: Rethink Equipment Donation Models

The seventeen instances of donated but non-functional Industry 4.0 equipment documented in this study represent a familiar and avoidable failure mode. Equipment donations to TVET institutions are frequently made on a project-cycle timeline that prioritises visible capital disbursement over sustainable operational impact. A CNC machine delivered and photographed for a project report counts as a delivered output whether or not it is ever used for instruction. This creates systematic incentives for the wrong kind of investment (Tilak, 2002).

Development partners should require that any Industry 4.0 equipment donation is accompanied by a minimum three-year commitment to instructor training, software licence maintenance, and technical support provision. They should also prioritise institutional capacity — governance quality, industry partnership depth, power reliability — over equipment quantity when selecting institutions for support. Concentrating resources on institutions with the governance and human capacity to use them effectively will produce more learning outcomes per dollar invested than spreading the same resources thinly across all institutions as a gesture of equity (Dougherty, 2016).

Longer-term, development partners have an important role to play in supporting the regional hub model proposed above — particularly in identifying and co-financing institutions in secondary cities that can serve as accessible Industry 4.0 training centres for a wider catchment of students and instructors than their immediate host communities.

For TVET Institutions: Prioritise Governance Before Equipment

The finding that active industry partnerships mediate performance across all readiness dimensions has a direct implication for institutional leadership: investing time and effort in building and maintaining genuine industry relationships is at least as important as lobbying for additional equipment. The better-performing regional colleges in this sample had not received dramatically more resources than lower-performing comparable institutions. What distinguished them was sustained effort by leadership to make industry advisory boards functional, to negotiate instructor secondment agreements, and to use graduate tracer data as evidence to drive curriculum discussions (Porter, 1998).

Principals and academic registrars who do not currently have functional industry advisory mechanisms should treat establishing them as the first institutional priority — before curriculum reform, before equipment procurement requests. The data from this study suggest that functional governance and industry relationships are what make curriculum revision and equipment use effective. Without them, both curriculum reform and equipment investment tend to produce less impact than they should.

Addressing the Two-Tier Risk

The 27.6-point I4RI gap between national polytechnics and community TVET centres should be treated as a warning signal that current patterns of TVET development are creating a structurally unequal system, with consequences that will compound over time. If left unaddressed, this gap will translate into diverging employment outcomes, earnings, and economic mobility for the students from different institution types — with the rural, lower-income students who disproportionately attend community centres receiving systematically worse preparation for the labour market that is emerging around them (UNESCO-UNEVOC, 2021; Acemoglu & Robinson, 2012).



Addressing this requires a combination of redistribution and access measures. Scholarships or transport subsidies enabling rural students to access better-equipped regional training hubs, online and blended learning components that reduce the daily travel burden, and mobile intensive training units that bring Industry 4.0 equipment to community centres for block release periods are all measures that merit serious policy consideration. They will not eliminate the structural gap — that requires sustained investment in the institutions themselves — but they can reduce its effect on individual students while longer-term institution-building takes place (Hanson, 2012).

Conclusion

This study asked a direct question: are TVET institutions in Sub-Saharan Africa ready to train workers for an Industry 4.0 economy? Based on a systematic comparative assessment of forty-two institutions in Kenya, Ghana, and Nigeria, the answer is no — and the scale of the gap is larger and more structurally entrenched than existing policy documents or institutional self-assessments acknowledge.

A mean I4RI score of 31.4 out of 100, with no institution reaching the basic readiness threshold and the worst-performing quarter of the sample scoring below 20, is not a picture of a system that is close to where it needs to be. The dimensions of the failure are interrelated and mutually reinforcing: curricula that were last revised before much of the relevant technology was in wide industrial use, instructors who have received no meaningful technical updating in Industry 4.0 domains, infrastructure that is either absent or non-functional in the majority of institutions, and governance structures that have not successfully integrated industry as a genuine partner in training system development.

None of this is inevitable. The higher-performing institutions in the sample demonstrate that meaningful progress is possible within current resource constraints, given the right governance priorities and industry relationships. The policy interventions described in Section 6 are specific, actionable, and proportionate to the scale of the problem. Rapid-cycle curriculum updating, mandatory instructor secondment, competency-linked re-registration, regional hub infrastructure, and equity-oriented access measures are all achievable within the existing legislative and institutional frameworks of the countries studied.

The cost of inaction is not abstract. Industry 4.0 is already operating in the workplaces where TVET graduates seek jobs. Every cohort that passes through a training system that is not teaching them what those workplaces require is a cohort entering the labour market with a deficit that will follow them throughout their working lives. Closing the Industry 4.0 readiness gap in Sub-Saharan Africa's TVET systems is, ultimately, an investment in the economic futures of the millions of young people who depend on those systems as their principal pathway to productive employment.

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Ethics and Conflict of Interest

Ethical approval was obtained from the University of Eldoret Research Ethics Committee prior to data collection. Informed written consent was obtained from all individual participants. All institutional data are reported in aggregate form to preserve confidentiality. The author confirms that artificial intelligence tools were used solely for the purposes of language editing, grammar checking, and formatting during the preparation of this manuscript. All research design, conceptualisation, data collection, analysis, interpretation of findings, and the intellectual content of the article are the original work of the author. No AI tool was used to generate or fabricate research data, statistical results, or substantive arguments.



The author accepts full responsibility for the integrity and accuracy of all content presented in this article. The author declares no competing interests in relation to this work.

Data Availability

The institutional survey instrument, observation protocol, and aggregated anonymised datasets supporting this study are available from the corresponding author upon reasonable request.

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TRENDS IN ADULT EDUCATION RESEARCH IN TURKIYE: A DESCRIPTIVE SYSTEMATIC MAPPING REVIEW OF GRADUATE THESES (2023–2026)

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Abstract

This study presents a descriptive systematic mapping review of graduate theses produced in the field of adult education in Türkiye between 2023-2026. Data were collected from the National Thesis Center of the Council of Higher Education (YÖKTEZ) and reviewed using a PRISMA-guided selection process. A total of 273 theses were chosen and analyzed using a coding form developed by the researchers. Thematic categories were formed through content analysis, and the study primarily employed a quantitative descriptive approach based on frequency and percentage distributions. The findings reveal that thesis production in adult education remained high and stable during the study period. The field remains concentrated in a limited number of institutions, and most theses were produced outside dedicated adult education programs, which reflects an increasingly interdisciplinary nature. Qualitative and quantitative approaches were employed at comparable rates, indicating a shift from the quantitative dominance reported in earlier reviews. Correlational designs, case studies, scales, and interviews were the most frequently used methodological tools. Thematically, lifelong learning dispositions, competencies, and attitudes constituted the dominant focus, followed by adult education programs and digital learning. However, theoretical studies, andragogy, and research involving marginalized groups remained limited. The study offers an updated overview of the field in Türkiye and points out important gaps for future research.

Keywords: Adult education, lifelong learning, graduate theses, systematic mapping review, descriptive analysis, Türkiye.

INTRODUCTION

In today's world, where knowledge production is accelerating, technological transformations affect every aspect of life, and individuals are expected to continuously acquire new knowledge and skills, learning is no longer an activity confined to childhood and youth. The knowledge and skills acquired during the early stages of life are often insufficient throughout one's professional and social life. This situation has made adult education and lifelong learning fundamental components of contemporary educational systems. Knowles (1980) argued that the lifespan of knowledge is becoming increasingly shorter and that this development has transformed continuous learning from an individual choice into a structural necessity. This perspective has also been widely adopted by international organizations. The CONFITEA (International Conference on Adult Education) frameworks organized by UNESCO have positioned adult education as a cornerstone of lifelong learning policy and consistently emphasized its



importance for social cohesion, economic participation, and democratic citizenship (Ireland, 2022). Similarly, Zmeyov (1998) maintained that lifelong learning has ceased to be an option in modern societies and has become a defining characteristic of adult life, making adult education increasingly important both as a field of practice and as a subject of scientific inquiry.

The recognition of adult education as an independent field has been closely associated with the development of the concept of andragogy. Henschke (2011) documented that the concept has a history of nearly two centuries. He noted that andragogy was first introduced by the German educator Alexander Kapp in 1833, later revived by Eugen Rosenstock-Huessy, and subsequently incorporated into adult education discourse through Eduard Lindeman. A decisive moment in the contemporary development of the concept occurred in 1966 when the concept was introduced to Malcolm Knowles, who later popularized it within the North American context. Knowles defined andragogy as the art and science of helping adults learn and built its framework around the principles of self-direction, experiential learning, intrinsic motivation, readiness to learn, and the educator's role as a facilitator rather than a director. However, Henschke (2011) warned that reducing andragogy solely to Knowles's formulation overlooks the broader international tradition from which the concept emerged and the theoretical contributions that enriched it over several decades.

European and North American understandings of andragogy differ in important ways. Loeng (2018) argued that Knowles's understanding of andragogy focuses primarily on self-directed learning, learners' prior experiences, and individual development, whereas the European tradition approaches andragogy as an independent scientific discipline encompassing social, civic, and transformative dimensions. While the North American model emphasizes individual self-actualization, the European tradition highlights collective responsibility, social transformation, and citizenship (Loeng, 2018; Zmeyov, 1998). This difference goes beyond theory and reflects different views about the purpose of adult education and the role of adult learners in society. When considered together, these traditions suggest that andragogy is not a single unified theory but rather a multilayered and internationally contested perspective on adult education shaped by historical, philosophical, and social influences.

Beyond andragogy, the field of adult education relies on a rich diversity of theoretical perspectives. Elias and Merriam (2005) identified multiple philosophical orientations that shape adult education practice and research, including liberal, progressive, humanistic, critical, and analytical traditions. Mezirow's transformative learning theory, Freire's critical theory, and Gramsci's concepts of organic intellectual and cultural hegemony have provided distinctive perspectives on the aims and processes of adult learning in relation to power, consciousness, and emancipatory practice. This theoretical diversity reflects the interdisciplinary breadth of adult education and explains its intersections with other academic disciplines. At the same time, as Elias and Merriam (2005) noted, such diversity also creates ongoing challenges for systematically mapping knowledge production within the field.

Although the concepts of adult education and lifelong learning are sometimes used interchangeably in literature, they are not theoretically synonymous. Lifelong learning provides a broader framework encompassing learning processes that occur throughout all stages of life and across diverse learning environments, whereas adult education focuses specifically on the learning experiences, educational activities, and learning needs of adult individuals within this broader framework (Elias & Merriam, 2005). In recent years, however, the influence of the lifelong learning approach on adult education research and practice has increased considerably, and adult education programs in many countries have been organized under lifelong learning policies (Ireland, 2022). For this reason, in this present study lifelong learning is considered as one of the institutional and theoretical extensions of adult education, and studies directly related to lifelong learning have been included within the scope of the research.



In the Turkish context, Alpaydın (2022) noted that adult education practices can be traced historically to the Seljuk and Ottoman periods. During these periods, religious and moral development was largely provided through madrasas and dervish lodges, which also served as centers of scholarly and community education. Adult education initiatives aimed at enlightening the public during the late Ottoman era were later transformed into a citizenship-building project following the establishment of the Republic. Unique institutions such as Halkevleri (The People's Houses), Millet Mektepleri (Nation Schools), and Köy Enstitüleri (Village Institutes) played a significant role in building the human capital of the new state (Duman, 2007). In the following decades, public adult education expanded through Public Education Centers operating under the Ministry of National Education. Today, a substantial portion of non-formal adult education services in Türkiye is provided through Public Education Centers affiliated with the Directorate General for Lifelong Learning (DGLL) of the Ministry of National Education (DGLL, 2025). In addition, Sürekli Eğitim Merkezleri (Continuing Education Centers) established by universities, courses organized by municipalities and non-governmental organizations (NGO) constitute important components of adult education practice in Türkiye (Duman, 2007).

From an academic perspective, adult education research in Türkiye has a relatively recent history. Yıldız (2004) documented that the first master's thesis in adult education was completed in 1978 and the first doctoral dissertation in 1983, signaling the formal entry of the field into Turkish higher education. Although the academic body remained concentrated in a limited number of universities for many years, the field has expanded considerably since then, with graduate programs in lifelong learning and adult education being established at various universities. In recent years, adult education has increasingly become an interdisciplinary area of research associated with lifelong learning, professional development, active ageing, migration, digital learning, and various social policy issues (Eyyubova, 2023; Sirem, 2024; Yenil & Şahan, 2024). This development has contributed both to the quantitative growth of scholarly production and to the diversification of research topics within the field.

Within the framework of the CONFINTEA VII process, Ireland (2022) emphasized that adult education exhibits a highly diverse structure characterized by multiple theoretical orientations, fields of practice, and policy contexts. Similarly, Elias and Merriam (2005) highlighted the interdisciplinary nature of adult education by noting its interaction with disciplines such as sociology, psychology, philosophy, and political science. While this diversity demonstrates the theoretical and practical richness of the field, it also makes it more difficult to systematically monitor and evaluate general trends in the research produced within it. Therefore, synthesis studies examining the bibliographic and content-related characteristics of graduate theses are considered important for identifying developmental trends in the field and guiding future research.

Review of Literature

Although bibliographic and systematic studies focusing on adult education in Türkiye remain limited in number, they constitute an important body of work within which the present study is situated. Each of these studies has approached the field from a different perspective. The first systematic review of Turkish adult education theses was conducted by Yıldız (2002) as a master's thesis in the field. The study examined 110 graduate theses produced at Ankara University and Boğaziçi University between 1978 and 2001. Seven thematic groups were identified, including literacy, community development, participation, and vocational education. Yıldız observed that quantitative approaches were dominant, while qualitative research remained considerably underrepresented. He also emphasized that a substantial proportion of the theses contained serious deficiencies regarding sample selection and methodological reporting. Finally, this study remains a key reference for understanding the early academic institutionalization of adult education research in Türkiye.



Eldeleklioğlu Onuk (2019) narrowed their focus by examining 25 theses published in the National Thesis Center of the Council of Higher Education (YÖKTEZ) between 2007 and 2018 that explicitly included the term “adult education” in their titles. Using a qualitative single-case study design, the author found that course and program evaluation was the most frequently studied theme. More striking was the methodological picture pointed out by the study. Nearly half of the theses did not report their research methods in the abstract section, validity and reliability analyses were inadequately presented, and approximately half of the citations listed in the references were not cited within the main text.

It could be claimed that Eyyubova (2023) provided the most comprehensive overview of adult education research in Türkiye to date. The study examined 266 theses published between 1988 and 2021 through a systematic review approach, and revealed three remarkable findings. First, research production was concentrated in only a small number of universities. Second, quantitative studies based primarily on surveys and scales were dominant. Third, program evaluation emerged once again as the most frequently studied topic, whereas areas such as the psychological dimensions of adult learning, the relationship between migration and adult education, and andragogical theorization remained relatively neglected.

Erdoğan and Öğdem (2023) expanded their scope further by examining scholarly production in the field of lifelong learning through a bibliometric perspective. They analyzed 1,031 international articles and 34 articles from Türkiye indexed in the Web of Science database, and demonstrated that the field began to emerge during the 1980s and experienced major growth after the 2000s. Although Türkiye's position among the top fifteen countries in terms of citation performance is a positive finding, the majority of Turkish studies were found to focus on preservice teachers' lifelong learning tendencies and scale development. It could be argued that while the Turkish literature has established a presence internationally, it remains concentrated within a relatively narrow thematic area.

Sirem (2024) analyzed 147 theses produced between 2019 and 2024 that explicitly included the term “lifelong learning” in their titles through document analysis. The findings presented a pattern largely consistent with those of the present study, including the predominance of master's theses, the dominance of Turkish as the language of publication, the widespread use of correlational designs, and the extensive reliance on scale-based data collection instruments.

Yenil and Şahan (2024) turned the focus from theses to journal articles by examining 125 research articles published between 2013 and 2023 in Turkish academic journals indexed in DergiPark within the context of lifelong learning and adult education. Their findings indicated that publication number had increased in recent years and that adult competency development and in-service training were among the most frequently studied themes. The study also identified an important gap: European lifelong learning policy frameworks have received almost no attention in the Turkish literature.

Tecimer Altınel and Hamalosmanoğlu (2025) systematically reviewed 73 theses and articles produced in the field of lifelong learning between 2014 and 2024. Their findings showed that the majority of studies were conducted at the master's level and that academic interest in the field increased significantly after 2021. While themes related to lifelong learning tendencies, competencies, and perceptions dominated the literature, studies focusing on educational policies, active ageing, and practice-oriented interventions remained limited.

Sadiç and Çeliköz (2026) narrowed the focus further by systematically reviewing 17 studies related exclusively to the professional development of adult educators in accordance with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. Despite its relatively small scope, the study provided valuable insights. Andragogy remained the dominant theoretical framework in the field, while the majority of studies focused on needs assessment and



situation analysis. Intervention- and implementation-oriented studies were found to be almost non-existent. The authors summarized this situation by arguing that the field appears capable of growing through identifying problems but has not yet moved sufficiently toward producing solutions. Their call for more systematic review studies in adult education supports the rationale for this study.

When considered together, these seven studies demonstrate that each has contributed to the field from a different perspective. However, most of them focused on specific periods, sub-themes, or publication types and left a gap for the implementation for this present study. The most comprehensive thesis review conducted by Eyyubova (2023) ended in 2021, and theses produced after this date have not yet been the subject of a comprehensive synthesis study. Building on this gap, the present research aims to examine graduate theses completed between 2023 and 2026 and to provide an up-to-date picture of adult education research in Türkiye. Accordingly, theses registered in the National Thesis Center of the Council of Higher Education and completed between 2023 and 2026 were analyzed in terms of year of completion, university, thesis type, research method, research design, sampling approach, data collection instruments, and thematic focus.

Purpose of the Study

The purpose of this study is to examine graduate theses produced in the field of adult education in Türkiye between 2023 and 2026 through a systematic mapping review and to identify their general characteristics.

Research Question

What are the characteristics of graduate theses produced in the field of adult education in Türkiye between 2023 and 2026 (as of May 23, 2026)?

Sub-Research Questions

1. How are the theses distributed across years?
2. In which languages were the theses written?
3. What is the distribution of the theses by degree type (master's thesis/doctoral dissertation)?
4. How are the theses distributed across universities?
5. Are the theses situated within adult education and lifelong learning programs, or within other disciplinary fields?
6. What research approaches were adopted in the theses?
7. What research designs were employed in the theses?
8. What data collection instruments were used in the theses?
9. Which participant groups and data sources were utilized in the theses?
10. What is the thematic distribution of the theses?

METHOD

Research Design

This study employed a systematic mapping review (SMR) design to examine graduate theses produced in the field of adult education in Türkiye between 2023 and 2026 (as of May 23, 2026). Systematic mapping reviews aim to provide a structured overview of a broad research field by identifying, categorizing, and describing existing studies rather than synthesizing their findings to answer a narrowly defined research question (Soaita et al., 2020). Unlike conventional literature reviews, which focus primarily on the substantive findings of studies, mapping reviews examine the characteristics and distribution of research activity across a field (Cooper, 2016). Their primary purpose is to map the



quantity, type, and distribution of research within a field and to identify publication trends, thematic concentrations, and research gaps (Petersen et al., 2008).

Therefore, the study does not involve the synthesis of empirical findings or the statistical aggregation of effect sizes required in systematic reviews and meta-analyses. Rather than evaluating the outcomes of adult education research, it aims to map the structural characteristics of the field by examining the bibliographic, methodological, and thematic features of graduate theses. In this respect, the study is consistent with the fundamental purpose of systematic mapping reviews, which is to provide a broad overview of research activity and identify trends and gaps within a research domain.

Scope of the Study

Document analysis was employed as the data collection method. Within the scope of the study, graduate theses registered in National Thesis Center (YÖKTEZ) database were systematically examined. A coding form developed by the researcher consisting of 18 categories was used in the analysis of the theses, and all data were recorded through this form.

To ensure methodological transparency and systematicity in the identification of theses to be included in the study, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were drawn upon as a reporting framework (Page et al., 2021). Accordingly, a search was conducted in the YÖKTEZ database using predetermined keywords. The keywords used during the screening process are presented in Table 1.

Table 1. Keywords used in the database research.

Key Word	English Equivalent	Status
Yetişkin eğitimi	Adult education	Included
Hayat boyu öğrenme	Lifelong learning	Included
Yaşam boyu öğrenme	Lifelong learning	Included
Andragoji	Andragogy	Included
Halk eğitimi	Community/non-formal education	Included
Yaygın eğitim	Non-formal education	Included
Sürekli eğitim	Continuing education	Excluded – primarily yielded studies in medical fields
Üçüncü yaş	Third age	Excluded – primarily yielded studies related to tourism and health
Yetişkin öğrenmesi	Adult learning	No relevant results obtained

As shown in Table 1, the keywords “adult education,” “lifelong learning,” “andragogy,” “community education,” “non-formal education,” and “adult learning” were used during the screening process. However, searches conducted using the keywords “continuing education” and “third age” primarily brought studies in health, nursing, and tourism, and were therefore excluded from the study. In addition, no recent study meeting the inclusion criteria was identified through searches using the keyword “adult learning.” 338 theses were identified after the initial search. A total of 45 duplicate records detected through different keywords were removed from the dataset, and two theses with restricted access were also excluded. The remaining theses were examined at the title, abstract, and full-text levels and evaluated according to the inclusion and exclusion criteria which were predetermined by the researchers. At this stage, 18 additional theses that did not meet the criteria were excluded. As a result, a total of 273 theses were included in the final dataset. The inclusion and exclusion criteria used during the evaluation process are presented in Table 2.

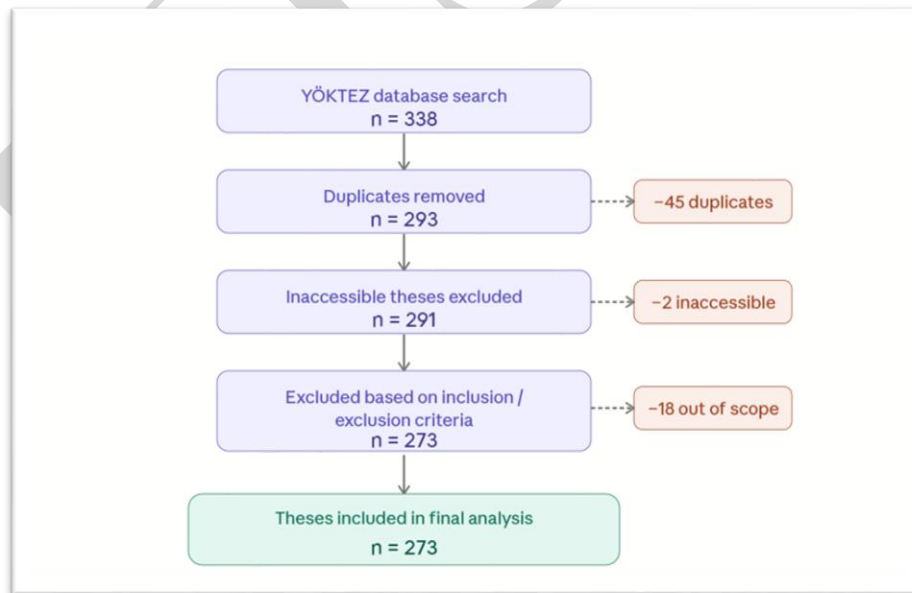
**Table 2.** Inclusion and exclusion criteria.

Inclusion Criteria	Exclusion Criteria
1. Directly addressing adult learning.	1. Studies focusing exclusively on child and adolescent education.
2. Focusing on adult learners as the primary research participants.	2. Studies selecting only primary or secondary school students as participants.
3. Establishing a theoretical connection with concepts such as lifelong learning, andragogy, community education, active ageing, or non-formal education.	3. Studies using the concept of lifelong learning only in a rhetorical or superficial manner.
4. Examining adult learning processes such as in-service training and professional development of educators, teachers, and other non-formal education personnel.	4. General educational studies without a direct connection to adult education.
5. Being publicly accessible.	5. Studies in fields such as health or tourism that do not place adult learning at their center.
	6. Theses closed to public access by their authors.

The identification of theses included in the study was not based solely on keywords. The purpose, sample, theoretical framework, and relevance to adult learning were also considered based on predefined criteria. Accordingly, studies directly addressing adult learning, focusing on adult learners, establishing theoretical links with concepts such as lifelong learning, andragogy, community education, and non-formal education, as well as theses examining in-service training and professional development processes of educators and other non-formal education personnel, were included in the study.

In contrast, studies focusing exclusively on child and adolescent education, studies selecting only primary or secondary school students as participants, studies employing the concept of lifelong learning only superficially, general educational studies without a direct connection to adult education, and studies in health or tourism that did not place adult learning at their center were excluded. Theses with restricted access were also excluded from the dataset.

To ensure transparent reporting of the entire selection process described above, a PRISMA flow diagram was prepared and is presented in Figure 1.

**Figure 1.** PRISMA flow diagram of the thesis selection process



Data Analysis

The data analysis process was carried out in two stages. In the first stage, a content analysis approach was employed to identify categories such as themes, sub-themes, and participant groups/data sources. During this process, the theses were systematically reviewed, coded, and organized into categories. In the second stage, frequency (*f*) and percentage (%) distributions were calculated for the identified categories, and the findings were presented in tables. The whole analysis was conducted using Microsoft Excel. The categories used in the analysis are presented in Table 3.

Table 3. Categories used in thesis analysis.

Categories Used in Thesis Analysis	
1) Thesis ID and Thesis Title	10) Department/Program
2) Author	11) Purpose of the Study
3) Supervisor's Academic Title	12) Theme
4) Supervisor	13) Sub-themes
5) Year	14) Research Approach
6) Language of the Thesis	15) Research Design
7) Thesis Type	16) Data Collection Instruments
8) University	17) Participant Group/Data Source
9) Institute/Faculty	18) Researcher's Notes

All 18 categories included in the coding form were utilized during the data collection process. However, only those categories directly related to the objectives of the study were reported in the findings section. Categories such as the supervisor's academic title, supervisor's name, and the purpose of the thesis were not included in the findings, as they did not provide meaningful analytical value. The category of researcher's notes was not treated as a formal finding; rather, it served as a basis for the interpretive discussions presented in the discussion section.

The coding form was developed by the authors and finalized through discussion and expert review. To establish the reliability of the coding process, 30 theses, representing 10.9% of the dataset, were independently coded by the researcher and the supervisor. The coding results were then compared using the formula proposed by Miles and Huberman (1994):

$$\text{Reliability} = \text{Agreement} / (\text{Agreement} + \text{Disagreement}) \times 100$$

The level of agreement between the coders was calculated as 93.3%. This value points out a high level of reliability and demonstrates that the coding categories were applied consistently throughout the analysis process. Cases involving disagreement appeared during the coding of categories such as *Themes*, *Sub-Themes*, *Participant Groups/Data Source* and *Researcher's Notes*. These discrepancies were re-examined by the researchers and final coding decisions were reached through discussion and consensus.

RESULTS

1. Distribution of Theses by Year

The distribution of the graduate theses examined within the scope of the study by year is presented in Table 4.

Table 4. Distribution of theses by year.

Year	Number of Theses	Percentage (%)
2023	95	34.8
2024	76	27.8

**Table 4 (Continued).** Distribution of theses by year.

Year	Number of Theses	Percentage (%)
2025	92	33.7
2026 (until May 23)	10	3.7
Total	273	100.0

As shown in Table 4, the distribution of the 273 graduate theses included in the study appears relatively balanced across years. The highest number of theses was completed in 2023 with 95 studies (34.8%), followed by 2025 with 92 theses (33.7%) and 2024 with 76 theses (27.8%). Since the year 2026 had not yet been completed at the time the study was conducted, only the 10 theses (3.7%) accessible up to May 23, 2026, were included in the analysis. The findings indicate that graduate thesis production in the field of adult education remained at a high level during the 2023–2025 period and did not display a clear upward or downward trend across years.

2. Languages Used in Thesis Writing

Table 5 presents the frequencies and percentages of the languages used in the graduate theses examined within the scope of the study.

Table 5. Language of the examined theses.

Language	<i>n</i>	%
Turkish	247	90.5
English	25	9.2
German	1	0.4
Total	273	100.0

Table 5 presents the distribution of the theses included in the study according to their language of publication. The findings indicate that the vast majority of the theses were written in Turkish. Of the 273 theses examined, 247 (90.5%) were written in Turkish. The number of theses written in English was 25, accounting for 9.2% of the total. Only one thesis (0.4%) was written in German. These findings suggest that graduate research produced in the field of adult education in Türkiye is conducted predominantly in the national language.

3. Distribution of Theses by Type (Master's Thesis / Doctoral Dissertation)

The types of graduate theses examined within the scope of the study are presented in Table 6.

Table 6. Distribution of theses by type.

Type	<i>n</i>	%
Master's Thesis	222	81.3
Doctoral Dissertation	47	17.2
Medical Specialization Thesis	4	1.5
Total	273	100.0

Table 6 presents the distribution of the theses included in the study according to thesis type. The findings indicate that graduate research in the field of adult education is concentrated largely at the master's level. Of the 273 theses examined, 222 (81.3%) were master's theses, 47 (17.2%) were doctoral dissertations, and 4 (1.5%) were medical specialization theses. These findings suggest that knowledge production in the field is carried out predominantly through master's degree programs.



4. Distribution of Theses by University

The universities at which the graduate theses examined within the scope of the study were conducted, together with their frequencies and percentages, are presented in Table 7.

Table 7. Distribution of Theses by University

University	<i>n</i>	%
Ankara University	32	11.7
Bartın University	10	3.7
Atatürk University (Erzurum)	10	3.7
Anadolu University (Eskişehir)	9	3.3
Sakarya University	8	2.9
Necmettin Erbakan University (Konya)	8	2.9
Kocaeli University	8	2.9
Gazi University	8	2.9
Other Institutions (<i>n</i> < 8)	180	65.9
Total	273	100.0

As shown in Table 7, Ankara University produced the highest number of theses in the field of adult education (*n* = 32). It was followed by Bartın University and Atatürk University (*n* = 10), Anadolu University (*n* = 9), and Sakarya University, Necmettin Erbakan University, Kocaeli University, and Gazi University (*n* = 8). The findings indicate that although thesis production in the field of adult education is distributed across many universities, Ankara University continues to maintain its leading position in the field.

5. Disciplinary Affiliation of Theses: Adult Education Programs vs. Other Fields

A total of 38 theses were produced in departments directly related to adult education. The institutions that produced theses within the field are presented in Table 8.

Table 8. Theses produced in adult education-related programs.

Institution	<i>n</i>
Ankara University (Lifelong Learning and Adult Education Department)	24
Kocaeli University (Lifelong Learning and Adult Education Program)	6
Sakarya University (Lifelong Learning Program)	5
Marmara University (Public Education Program)	2
Bartın University (Lifelong Learning and Adult Education Program)	1
Total	38

As shown in Table 8, only 38 of the 273 theses included in the dataset (13.9%) were produced directly within Adult Education, Lifelong Learning, or Public Education programs. In contrast, 235 theses (86.1%) were completed in a variety of other disciplines, including Curriculum and Instruction, Educational Sciences, Computer Education and Instructional Technology, Educational Administration, Sociology, Nursing, Gerontology, and English Language Education.



The findings suggest that Ankara University bears a substantial share of the academic workload within the discipline that formally carries the name of adult education in Türkiye. Furthermore, a considerable proportion of the theses examined were found to be institutionally registered under Educational Sciences, Curriculum and Instruction, or other education-related disciplines, despite being closely associated with adult education in terms of subject matter.

6. Research Approaches Adopted in the Theses

The research approaches adopted in the theses examined within the scope of the study are presented in Table 9.

Table 9. Research approaches adopted in the theses.

Research Approach	<i>n</i>	%
Qualitative	116	42.5
Quantitative	111	40.7
Mixed Methods	46	16.8
Total	273	100.0

As shown in Table 9, the qualitative approach was the most frequently employed research approach in the theses examined ($n = 116$, 42.5%). The number of theses adopting a quantitative approach was 111, accounting for 40.7% of the total. A further 46 theses (16.8%) were conducted using mixed methods. The findings indicate that qualitative and quantitative research approaches were employed at relatively similar rates, whereas the use of mixed methods remained more limited.

7. Research Designs Used in the Theses

The research designs employed in the master's theses and doctoral dissertations examined within the scope of the study are presented in Table 10.

Table 10. Research designs used in the theses.

Research Design	<i>n</i>
Correlational Design	92
Case Study	44
Document/Content Analysis	24
Phenomenology	20
Descriptive Survey Design	18
Explanatory Sequential Design (Mixed Methods)	14
Design-Based Research	11
Convergent/Parallel Mixed Methods Design	10
Basic Qualitative Research	8
Experimental Design	8
Literature Review / Systematic Review	6
Structural Equation Modeling / Advanced Quantitative Analysis	4
Action Research	4
Other	4
Historical Research	3
Scale Development	2
Program Development	1
Total	273



As shown in Table 10, the most frequently employed research design in the theses examined was the correlational design ($n = 92$, 33.7%). This was followed by case study ($n = 44$, 16.1%) and document/content analysis ($n = 24$, 8.8%). Phenomenology ($n = 20$) and descriptive survey design ($n = 18$) were also among the commonly preferred research designs.

Among the mixed methods designs, the explanatory sequential design ($n = 14$) was used more frequently than the convergent/parallel design ($n = 10$). Design-based research ($n = 11$) and basic qualitative research ($n = 8$) were represented at a moderate level, whereas experimental design ($n = 8$), structural equation modeling/advanced quantitative analysis ($n = 4$), action research ($n = 4$), and historical research ($n = 3$) appeared relatively infrequently. Scale development ($n = 2$) and program development ($n = 1$) emerged as the least frequently employed research designs.

8. Data Collection Instruments Used in the Theses

The distribution of the data collection instruments employed in the theses is presented in Table 11.

Table 11. Data collection instruments used in the theses.

Data Collection Instrument	<i>f</i>
Scale / Inventory	119
Interview	115
Document Analysis ¹	57
Questionnaire	43
Observation	15
Test	5
Other	1
Total²	355

Note. ¹Document analysis appears in both Tables 10 and 11 because it can be used both as an independent research design and as a data collection instrument. ² The total exceeds the number of theses ($n = 273$) because some theses employed more than one data collection instrument.

As shown in Table 11, the most frequently used data collection instruments were scales/inventories ($f = 119$) and interviews ($f = 115$). The close frequencies of these two instruments suggest that quantitative and qualitative data collection practices are represented in a relatively balanced manner within the field. Document analysis ($f = 57$) and questionnaires ($f = 43$) were used at a moderate level, whereas observation ($f = 15$) and tests ($f = 5$) were employed relatively infrequently. The fact that 355 instrument assignments were identified across 273 theses indicates that a considerable proportion of the studies adopted multiple data collection strategies.

9. Participant Groups and Data Sources

The participant groups and/or data sources utilized in the theses are presented in Table 12.

Table 12. Frequency distribution of participant groups and data sources.

Participant Group / Data Source	<i>f</i>	Participant Group / Data Source	<i>f</i>
Teachers	68	Employees / Workers	8
Adult Education Trainees	41	Various Professional Groups (Lawyers, Architects, etc.)	8
Reports / Policy Documents / Legislation	32	Refugees / Migrants	7
University Students	29	Nurses / Physicians / Healthcare Personnel	5
Educational Administrators	26	Newspapers / Journals / Print Media Archives	5



Table 12 (Continued). Frequency distribution of participant groups and data sources.

Participant Group / Data Source	f	Participant Group / Data Source	f
Adult Educators / Course Instructors and Administrators	23	Digital Content	2
Preservice Teachers	18	Religious Officials / Imams / Preachers	2
Faculty Members / Academics	16	Prisoners	2
Parents	15	High School Students	1
Other	15	LGBTQ+ Individuals	1
Older Adults	12		
Total			336

As shown in Table 12, teachers ($f = 68$) were the most frequently used participant group and data source in the theses examined. This group was followed by adult education trainees ($f = 41$), reports, policy documents, and legislative texts ($f = 32$), and university students ($f = 29$). Educational administrators ($f = 26$) and adult educators/course instructors ($f = 23$) also appeared frequently among the participant groups.

On the other hand, studies focusing on refugees and migrants ($f = 7$), nurses, physicians, and healthcare personnel ($f = 5$), prisoners ($f = 2$), high school students ($f = 1$), and LGBTQ+ individuals ($f = 1$) were found to be relatively limited. Considering that some studies relied on more than one participant group or data source, a total of 336 category assignments were identified across 273 theses.

It should also be noted that studies focusing exclusively on primary and secondary school students were excluded in accordance with the exclusion criteria. The single study classified under the high school student category in Table 12 included this group as part of a broader participant structure consisting of teachers, school administrators, parents, and subject-matter experts. Since high school students did not constitute the primary focus of that study, the thesis was included in the dataset in accordance with the established inclusion criteria.

10. Thematic Distribution of the Theses

When the theses were classified through thematic content analysis (a single thesis could be coded under more than one category), the distribution presented in Table 13 emerged.

Table 13. Thematic distribution of the theses (A thesis may be coded under more than one theme).

Theme Category	f
Lifelong Learning Tendencies, Competencies, and Attitudes	113
Adult Education Institutions, Programs, and Processes	56
Digital Learning, E-Learning, and Distance Education	45
Public Education / Non-Formal Education	41
Teacher Education and Professional Development	29
Ageing, Active Ageing, and the Third Age	16
Women-Focused Studies	12
Arts, Music, and Creative Education	9
Religious Education / Non-Formal Religious Education	8
Migration, Refugees, and Foreign Language Education	7
Andragogy and Theoretical Studies	6
Total	342



As shown in Table 13, the largest number of theses was clustered under the theme of lifelong learning tendencies, competencies, and attitudes ($f = 113$). This was followed by adult education institutions, programs, and processes ($f = 56$), digital learning, e-learning, and distance education ($f = 45$), and public education/non-formal education ($f = 41$).

A total of 29 theses were identified under the theme of teacher education and professional development, while 16 studies focused on ageing, active ageing, and the third age. Women-focused studies were represented in 12 theses. In contrast, arts, music, and creative education ($f = 9$), religious education/non-formal religious education ($f = 8$), migration, refugees, and foreign language education ($f = 7$), and andragogy and theoretical studies ($f = 6$) were represented to a more limited extent within the dataset.

DISCUSSION, CONCLUSION, and RECOMMENDATIONS

1. Growth of the Field and Its Institutional Structure

The findings of this study indicate that graduate thesis production in the field of adult education in Türkiye remained at a high level between 2023 and 2026. Eyyubova (2023) identified 266 theses produced during the 33-year period between 1988 and 2021. The fact that the sample of the present study, covering a period of approximately three and a half years, approaches this number suggests that scholarly production in the field has accelerated considerably. This trend coincides with the finding of Tecimer Altınel and Hamalosmanoğlu (2025), who also reported increasing academic interest in the field since 2021.

Furthermore, the findings reveal that this growth has not been distributed equally across universities. Ankara University alone accounted for 11.7% of all theses, while the limited number of universities identified as having independent graduate programs in adult education or lifelong learning produced only 38 theses, representing 13.9% of the total. Yıldız (2004) documented a similar institutional concentration for the 1978–2001 period, focusing on two universities with a long-established tradition in adult education. Eyyubova (2023) reported a similar pattern for the 1988–2021 period. The fact that three independent studies consistently identified this pattern across a period of nearly half a century suggests that adult education in Türkiye continues to be concentrated within a limited number of institutions.

On the other hand, the finding that 86.1% of all studies were produced outside adult education departments, particularly in disciplines such as educational sciences, sociology, nursing, and gerontology, points out that the field possesses an interdisciplinary dimension. As emphasized by Elias and Merriam (2005), this reflects the structural interdisciplinarity of adult education. At the same time, the fact that adult education programs at many universities are organized within broader educational sciences structures rather than as independent academic departments results in many theses related to adult education being registered under different disciplinary units. Therefore, the low level of institutional representation observed in Table 8 should not be interpreted as evidence of limited scholarly production. Rather, it should be understood as an indication that adult education research in Turkish academia is distributed across disciplines and structurally embedded within broader academic fields. In conclusion, adult education research in Türkiye has moved beyond the boundaries of any single academic department and has acquired an interdisciplinary character. This development indicates both the intellectual expansion of the field and the continuing questions around its academic identity.

2. Methodological Transformation and Continuing Research Habits

One of the notable findings of this study is the balance observed between qualitative (42.5%) and quantitative (40.7%) research approaches. Yıldız (2004) observed that quantitative approaches were



clearly dominant during the 1978–2001 period, while Eyyubova (2023) found that this tendency continued until 2021. The present findings suggest that this pattern has begun to change. In addition, during the coding process it was observed that the reporting of research methods in theses appeared to be more consistent than in previous periods. Although this observation may indicate that some of the methodological reporting deficiencies identified by Eldeleklioğlu Onuk (2019) for the 2007–2018 period have diminished, the scope of the present study does not allow this claim to be tested directly.

Nevertheless, a closer examination of the findings related to research designs reveals several continuing patterns. The correlational design alone accounted for 33.7% of all studies, while scales and inventories ($f = 119$) ranked first among the data collection instruments used. When considered together, these findings suggest that although methodological diversity has increased, certain research habits continue to persist. Sirem (2024), and Erdoğan and Öğdem (2023) documented a similar pattern in the Turkish literature. The observation made by Yıldız (2004) nearly twenty years ago still appears to be valid today. Furthermore, as emphasized by Sadıç and Çeliköz (2026), the field appears successful in identifying problems but has not yet sufficiently shifted toward intervention-oriented and practice-based research.

3. Thematic Transformation and Research Gaps

The thematic findings reveal that the theme of lifelong learning tendencies, competencies, and attitudes clearly dominates the field with 113 theses, accounting for more than one-third of all studies examined. The theme of digital learning, e-learning, and distance education ranked third with 45 theses. This finding is directly related to the fact that the study covers the post-COVID-19 period and provides concrete support for the observation of Tecimer Altınel and Hamalosmanoğlu (2025) that academic interest accelerated after 2021. At the same time, it was observed that the majority of these theses focused on digital readiness and individual adaptation, whereas studies addressing digital inequalities or the structural dimensions of digital learning remained relatively limited.

In contrast, andragogy and theoretical studies were represented in only six theses. This finding is consistent with Eyyubova's (2023) observation that andragogical theorization remains a relatively underdeveloped area. Similarly, Yenil and Şahan (2024) found that European lifelong learning policy frameworks are almost entirely absent from the Turkish literature, suggesting that the research agenda in Türkiye remains noticeably disconnected from international policy discourse. Considering that early adult education research in Türkiye was largely shaped by concerns related to literacy, citizenship, and social development (Yıldız, 2004), the increasing emphasis of contemporary studies on the measurement of individual competencies points to a noteworthy thematic shift.

4. The Question of Inclusiveness

The findings related to participant groups and data sources point to a systematic imbalance in representation within the field. While teachers constituted the most frequently studied group with 68 theses, groups such as prisoners ($f = 2$), LGBTQ+ individuals ($f = 1$), refugees ($f = 7$), and older adults ($f = 16$) occupied a much more limited place in the research agenda. This pattern reveals the tradition of using convenience sampling that shape the research culture in Turkish academic circles. Researchers appear to rely primarily on participant groups that are most readily accessible within institutional settings. This tendency, which is a common feature of educational research more generally, is also evident within the adult education literature. As a result, the research agenda appears to be shaped largely around accessible participant groups. This finding suggests the continuation of a pattern that does not fully align with the principle of inclusiveness emphasized by Ireland (2022) within the framework of CONFINTEA VII.



Finally, in order to evaluate the findings of the present study comparatively with previous period-based syntheses of the field, a summary table prepared using the findings of Yıldız (2004) and Eyyubova (2023) is presented below.

Table 14. Period-based comparison of adult education research in Türkiye.

Dimension	Yıldız (1978–2001)	Eyyubova (1988–2021)	Present Study (2023–2026)
Thematic Focus	Literacy, community development, participation	Program evaluation, lifelong learning tendencies	Lifelong learning tendencies, digital learning, competencies
Research Approach	Predominantly quantitative	Predominantly quantitative	Balanced use of qualitative and quantitative approaches
Research Design	Descriptive studies dominant	Survey- and scale-based studies dominant	Correlational and case study designs dominant
Theoretical Emphasis	Public education and social development	Program and process evaluation	Individual tendencies, competencies, and digital learning
Structure of the Field	Concentration within educational sciences	Concentration in a limited number of universities	Interdisciplinary expansion and institutional dispersion

When Table 14 is considered as a whole, it becomes evident that adult education research in Türkiye has undergone thematic, methodological, and institutional transformation. The early research agenda, which was largely shaped by literacy and social development concerns, appears to have gradually given way to themes focusing on individual competencies, lifelong learning tendencies, and digital learning. From a methodological perspective, a transition can be observed from the dominance of quantitative approaches toward a more balanced use of qualitative and quantitative methods. At the same time, certain established research habits appear to persist.

With regard to the institutional structure of the field, the findings suggest that the pattern of concentration has changed in form while continuing to exist. A centralized concentration has gradually been replaced by a more interdisciplinary distribution; however, this distribution has also brought with it a degree of uncertainty regarding the institutional identity of the field.

Conclusion

This study examined 273 graduate theses produced in the field of adult education in Türkiye between 2023 and 2026 through a descriptive systematic mapping review of their bibliographic and content-related characteristics. The findings revealed that graduate theses produced during this period displayed distinct methodological and thematic trends. When considered as a whole, the findings indicate that academic production in the field has continued and gained momentum. At the same time, this growth appears to have occurred alongside the reproduction of certain structural patterns.

Thesis production remained high and relatively stable during the 2023–2025 period. The volume of research produced within this approximately three-and-a-half-year period exceeded the number identified by Eyyubova (2023) for a 33-year timespan. The studies examined demonstrate an interdisciplinary character; however, this expansion has occurred alongside patterns of institutional concentration and uncertainty regarding the field's institutional identity. The balance observed between qualitative and quantitative approaches points to increased methodological diversity compared with



earlier periods. Nevertheless, the continued dominance of correlational designs and scale-based data collection practices suggests that established methodological habits remain influential, while intervention-oriented and practice-based research continues to be limited. Thematically, lifelong learning remains the dominant discourse, whereas theoretical and critical studies continue to receive relatively limited attention. Research focusing on disadvantaged groups also appears to remain insufficiently represented, reflecting a pattern that is not fully aligned with the principle of inclusiveness within the field.

This study is limited to theses registered in the YÖKTEZ Database and does not cover the entirety of 2026. Given these limitations, the findings should be considered a contemporary snapshot of adult education research in Türkiye and a starting point for more comprehensive and longitudinal synthesis studies in the future.

Recommendations

Based on the findings of the study, the following recommendations are proposed.

For researchers

More attention should be given to studies grounded in theoretical frameworks such as andragogy, transformative learning, and critical pedagogy. Research designs that move beyond correlational surveys and scale administration, particularly experimental, action research, and intervention-based approaches, are likely to make important contributions to the field. Priority should also be given to studies focusing on groups that remain underrepresented within the current research agenda, including refugees, prisoners, older adults, and LGBTQ+ individuals. Strengthening the connection between adult education research in Türkiye and the global research community through international policy frameworks and comparative studies also emerges as an important need.

For program developers and policymakers

The institutional visibility and capacity of independent graduate programs in adult education and lifelong learning should be strengthened. It is also important that the research agenda does not remain limited to the measurement of individual competencies, but expands to address structural inequalities, digital exclusion, and social participation.

For future research

Considering that the present study is limited to theses registered in the National Thesis Center database and does not include the entirety of 2026, future studies may benefit from examining longer time periods, incorporating additional data sources, and adopting international comparative perspectives.

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Ethics and Conflict of Interest

The authors declare that this study was conducted in accordance with ethical principles. Since the study is based exclusively on publicly accessible master's and doctoral theses retrieved from the National Thesis Center database, ethics committee approval was not required. The authors declare no conflict of interest.

Author Contribution

All authors contributed equally to this study.



Data Availability

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

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EXPLORING THE IMPACT OF INTEGRATING GITA'S EDUCATIONAL PHILOSOPHY INTO THE SCHOOL CURRICULUM ON STUDENT HOLISTIC DEVELOPMENT

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Abstract

This study explores the impact of integrating the educational philosophy of the Gita into the school curriculum on holistic student development. It aims to shed light on the key aspects of student development that can be fostered through the integration of Gita teachings into the school curriculum. The study adopts an exploratory content analysis method. The findings reveal that the Gita emphasizes the importance of self-realization, self-discipline, and selfless action, which have the potential to contribute to holistic student development. The Gita promotes a comprehensive understanding of education that encompasses intellectual, moral, emotional, and spiritual aspects. This study examines how studying the Gita fosters purpose, resilience, and ethical values in students to promote holistic development. The Gita's teachings also offer guidance on cultivating qualities such as self-control, focus, determination, and compassion, which can enhance students' personal and academic achievements. Additionally, the Gita's emphasis on mindfulness and self-reflection can contribute to students' emotional well-being and mental health. The study concludes that integrating Gita teachings into the school curriculum has the potential to foster holistic student development across various dimensions. These findings provide insights for educators, curriculum designers, and policymakers interested in incorporating Gita's educational philosophy into the school system. Further research and practical implementations are warranted to explore the effectiveness and challenges associated with integrating Gita teachings into the curriculum and to assess their impact on student outcomes.

Keywords: Bhagavad Gita, educational philosophy, Hindu scripture, holistic development, school curriculum.

INTRODUCTION

The Bhagavad Gita, often referred to as the Gita is a sacred Hindu scripture that is part of the ancient Indian epic, the Mahabharata. Gita recognizes the presence of Brahman, a supreme power that functions as the intelligent creator as well as Bhagwan, the ultimate divine force that reveals itself in different names and forms ((Shunmugam & Sukdaven, 2024). The Gita is widely recognized for its deep philosophical wisdom, ethical quandaries (Shunmugam & Sukdaven, 2024), and spiritual instructions (Chandra & Ranjan, 2022). It encompasses a wide range of philosophical and ethical teachings (Srinivasan & Aithal, 2023) and explores concepts such as duty, righteousness, selflessness, and the nature of reality as jnana yoga (the path of knowledge) [Radhakrishnan & Radhakrishnan, 1929]. The Bhagavad Gita represents more than just a set of religious principles to be followed; it encompasses an entire way of life that permeates every aspect of an individual's existence (Yilmaz & Morieson, 2023). It presents profound teachings on various aspects of life, spirituality, duty, and self-realization. The Gita explores concepts such as karma yoga (the path of selfless action), jnana yoga (the path of knowledge and wisdom), and bhakti yoga (the path of devotion).



The teachings of the Bhagavad Gita are deeply intertwined with the broader principles and beliefs of Sanatana Dharma (Shunmugam & Sukdaven, 2024). Sanatana Dharma includes the belief in karma (the law of cause and effect), dharma (one's duty and righteousness), samsara (the cycle of birth, death, and rebirth), and moksha (liberation from the cycle of rebirth). It presents a holistic approach to life that encompasses spiritual, ethical, and moral dimensions (Yilmaz & Morieson, 2023). In education, the Bhagavad Gita holds significant importance. It is often studied and taught for its profound insights into various aspects of life and spirituality (Shunmugam & Sukdaven, 2024). The Gita guides moral values, self-discipline, decision-making, and finding meaning and purpose in life. It offers teachings on self-awareness, self-realization, and the path to spiritual enlightenment.

In the present day, there is a significant challenge in achieving value-oriented education among individuals (Srivastava, 2016). This challenge is evident across schools, colleges, and universities, where there is a lack of wisdom, knowledge, and devotion. The Bhagavad Gita holds not only a crucial place in a single country but also in the global community due to its moral teachings and ethical actions (Divya & Aswathy, 2022). We can deepen our understanding of various fields in school education to university education by studying the Bhagavad Gita. The text emphasizes the integration of Karma Yoga, Gyan Yoga, and Bhakti Yoga, which are intertwined with the essence of education (Divya & Aswathy, 2022). The Bhagavad Gita offers different insights and levels of understanding based on individual intentions. Through an educational lens, we can explore the meaning, goals, significance, learning materials, teaching methods, curriculum, motivation, assessment practices, and the roles of both learners and teachers. The Bhagavad Gita provides a rich source for interpreting and discovering various aspects of educational philosophy (Divya & Aswathy, 2022). Bhagavad Gita is being taught as both an elective and regular course in numerous universities worldwide, including those in India. (Lolla, 2021). Its teachings on ethics and personal development are considered relevant for nurturing character and holistic growth in students (Divya & Aswathy, 2022).

Additionally, the Gita's teachings have been explored in the field of comparative religious studies and philosophy of education. Scholars have examined its relevance in diverse educational contexts, including the development of moral reasoning, character education, and the promotion of values such as compassion, tolerance, and universal love (Aiyar, 2019).

Gita: Wisdom, Paths to Self-realization and Relevance in Education

The Bhagavad Gita is an important text in the Sanatana Dharma tradition (Srinivasan & Aithal, 2023). It consists of a 700-verse dialogue between Lord Krishna and Arjuna, within the Mahabharata epic. The Gita explores concepts like Dharma, yoga, devotion, and self-identity, offering guidance for a fulfilling life using various metaphorical terms. In Gita, there are different paths for self-realization: Yoga, Bhakti, Karma, and Jnana. These paths recognize that individuals have different temperaments and inclinations. The Bhagavad Gita is not just an instruction manual, but a profound source of wisdom that encompasses the philosophy of life and psychology (Divya & Aswathy, 2022). It teaches the importance of disciplined living and fulfilling one's duty without attachment to the outcome, following the path of Sattva (purity and harmony). The teachings of the Gita are not limited to any particular community, caste, creed, sex, or country; they are a shared asset for all human beings (Divya & Aswathy, 2022). The metaphorical terms used in the Gita can have various meanings concerning the perspectives, context, and time (Remias, 2019).

The Gita serves as a synthesis of Vedic ideas and wisdom, developed through an instructional process. The Gita holds immense importance and timeless wisdom, which is why it is considered a significant part of the śruti literature (Remias, 2019). It emphasizes the purpose of work, focusing on the action itself rather than the results (Lolla, 2021). The practice of Karma Yoga is recommended, which involves



self-realization and the pursuit of knowledge (Vidya). Every individual, whether a student, professional, or elderly person, seeks salvation from various challenges and constraints in life, such as fear, pressure, conflict, ignorance, and illness (Divya & Aswathy, 2022). The Gita distinguishes between Avidya, actions driven by desires for material comforts and pleasure, and Vidya, actions aimed at self-actualization and realizing the true nature of the soul (Divya & Aswathy, 2022; Lolla, 2021; Srinivasan & Aithal, 2023). It highlights the importance of both logical knowledge and spiritual knowledge in one's journey (Shunmugam & Sukdaven, 2024). While we may be more familiar with educational principles and theories from the West, the Bhagavad Gita offers valuable insights that align with the components of educational philosophy (Divya & Aswathy, 2022). Understanding the teachings of the Gita can greatly benefit both teachers and students in carrying out their duties effectively (Lolla, 2021). Although the Gita originated in the context of a battlefield, its relevance in the present day, particularly in the field of education, remains meaningful.

Yoga involves practicing exercises, mental disciplines, and spiritual techniques to achieve unity with the divine. It includes postures (asanas), breathing exercises (pranayama), and meditation (Srinivasan & Aithal, 2023). Yoga aims to attain self-realization and awaken spirituality by purifying the body and mind (Srinivasan & Aithal, 2023; Choudhary & Prabha, 2023). Bhakti focuses on devotion, surrendering to a chosen deity, and developing love and respect (Srinivasan & Aithal, 2023). Karma pertains to the path of action and service, emphasizing fulfilling responsibilities without attachment to outcomes (Choudhary & Prabha, 2023). Individuals cleanse their minds and cultivate selflessness for the well-being of society by dedicating actions to empower others through service. Jnana represents the path of knowledge and wisdom. It involves self-exploration through contemplation to understand our nature and perceive reality (Choudhary & Prabha, 2023). Jnana Yoga encourages individuals to question their beliefs, explore understanding, and realize the transient nature of the material world. It is a journey of introspection and self-discovery leading to self-realization (Srinivasan & Aithal, 2023).

The Bhagavad Gita offers profound insights and teachings that encompass the essence of life and spirituality. It emphasizes fulfilling one's duties with dedication and without attachment to the results, selfless action, and paths to realization (the path of selfless action, the path of devotion, and the path of knowledge and wisdom). Furthermore, it emphasizes the importance of controlling the mind and senses to attain inner peace and clarity, teaches surrendering to a higher power, and recognizes the divine presence in all aspects of life. The scripture offers a comprehensive guide to living a purposeful and spiritually enriched life. It provides insights into various aspects of human existence and the path to self-realization (Besant, 2002).

Context and Rationale of the Study

In modern society, students are often characterized by their increased reliance on technology and information and communication technology (ICT). They have grown up in a digital age where access to information is readily available at their fingertips. As a result, students have become more adept at using technology for various purposes, such as research, communication, and entertainment. However, this increased dependence on ICT has also led to a shift in their social interactions. Students today may spend more time engaging with screens and virtual environments rather than participating in face-to-face interactions. As a result, they may have fewer opportunities to develop strong interpersonal skills, such as effective communication, empathy, and problem-solving in real-world situations.

Moreover, the modern educational system often places a significant emphasis on standardized testing and academic performance. This focus on measurable outcomes can sometimes result in a more mechanical approach to learning, where students are primarily focused on memorization, regurgitation of information, and achieving high grades. This emphasis on rote learning can discourage critical



thinking and creativity, as students may be more focused on following prescribed steps and meeting specific criteria rather than exploring alternative perspectives and solutions. Furthermore, the fast-paced nature of modern society can lead to increased stress and pressure on students. They may face high expectations from both their families and society to excel academically and achieve success. This pressure can sometimes limit their ability to think critically and independently, as they may prioritize conforming to societal norms and expectations rather than questioning and challenging existing systems or ideas.

The students in modern society may be highly proficient in using ICT and have access to vast amounts of information, there is a need to ensure that they also develop essential social, critical thinking, and problem-solving skills. Balancing the use of technology with opportunities for meaningful interpersonal interactions, fostering critical thinking and creativity, and promoting independence and resilience can help students thrive in an increasingly complex and interconnected world. The knowledge of the Gita can be instrumental in bridging the gap concerning the issues mentioned above. The Gita offers valuable insights and teachings that can help students develop a holistic approach to their education and personal growth.

The Gita, often regarded as a religious scripture, offers far-reaching insights that extend beyond its religious context. It serves as a profound source of philosophical and psychological wisdom, shedding light on various aspects of human life, the universe, nature, cognition, emotion, behavior, and education (Aiyar, 2019; Ghimire, 2013). We can enrich our understanding in fields such as philosophy, sociology, anthropology, and psychology, uncovering profound truths that have relevance beyond religious beliefs by utilizing the wisdom of the Gita. The integration of the knowledge and life skills related to the Gita into the school curriculum can bridge the gap between the challenges of the modern world and the holistic development of students. This integration enables educators to provide students with a framework for personal growth, ethical development, critical thinking, and emotional well-being.

Objectives

The research seeks to find out the following objectives:

1. To explore the educational philosophy of the Gita and its potential for nurturing holistic development among students.
2. To outline the key aspects of student development that can be fostered through integrating Gita teachings into the school curriculum.

METHOD

The research is descriptive in nature and takes a qualitative approach. It employs content analysis as the methodology, which involves systematically interpreting and analyzing various written texts and documents. Specifically, the research focuses on materials related to the Gita, metaphorically connecting them to the present social context. The primary objective of this study is to conduct a comprehensive analysis and interpretation of the documents and research papers about the research topic, aiming to uncover valuable insights and understanding in the relevant areas. To achieve this objective, the research delves deep into the realms of knowledge by extensively examining a wide range of sources, including literature reviews, research papers, journals, books, and other relevant and reliable sources.

RESULTS and DISCUSSION

The results of this study, which involved a systematic review of the educational philosophy presented in Gita lessons, were explored using a content analysis method that aligns with the school education



system. The researchers identified and abstracted relevant conceptual areas based on the research objectives, and these areas have been examined and discussed under separate headings corresponding to different research results.

Gita's Educational Philosophy for Holistic Development

The Gita is a complex text with multiple interpretations. However, in this heading, the topics related to how the educational philosophy of the Gita can contribute to nurturing holistic development among students have been explored and discussed separately.

Self-realization and Self-discipline

Self-realization is the process of recognizing and actualizing one's own abilities and potential. According to Tang et al. (2015), it involves practices such as mindfulness, self-acceptance, and empathy. Cultivating mindfulness enhances individuals' awareness of their thoughts, emotions, and actions (Bhatia et al., 2013). Self-acceptance is important in the journey of self-realization, and empathy helps in connecting with others on a deeper level. Achieving self-realization allows individuals to live a more fulfilling and purposeful life.

Similarly, the Gita teaches us about self-realization through meditation and the understanding of our true self or soul. According to the Gita, our true self is eternal and separate from our temporary physical body and senses (Gita 6:29). To achieve self-realization, the Gita advises us to detach ourselves from identifying solely with our body, senses, ego, and mind. It defines self-realization as recognizing and connecting with the deeper part of ourselves, going beyond the superficial level, and understanding our true nature.

Self-discipline is about having control over oneself and being able to motivate oneself without relying on others. Zimmerman and Kitsantas (2014) describe it as intentionally and attentively controlling oneself to overcome challenges and achieve objectives. The Gita defines self-discipline as controlling the senses with the mind and directing one's inner self towards the pursuit of ultimate truth (Gita 6:7). It emphasizes the practices of self-discipline and self-control that foster personal development and help individuals achieve their goals (Choudhary & Prabha, 2023). The Gita teaches that with a disciplined mind and a clear understanding, one can attain true freedom by letting go of attachment to worldly desires and negative emotions like anger, fear, and worry (BG 2:64).

In the context of education, self-realization and self-actualization are highly relevant to the well-being of learners. The Gita emphasizes the importance of understanding one's true nature and purpose in life (Divya & Aswathy, 2022). Self-actualization, on the other hand, refers to fulfilling one's potential and becoming the best version of oneself. The Gita encourages individuals to explore their unique talents and abilities and strive for personal growth and self-improvement (Lolla, 2021). Additionally, the Gita highlights the importance of acquiring both logical knowledge and spiritual knowledge as part of a holistic education (Shunmugam & Sukdaven, 2024). This approach allows students to develop a deeper understanding of themselves and the world around them.

Comprehensive Education

Comprehensive education refers to an educational approach that aims to provide students with a well-rounded and holistic learning experience. It focuses on nurturing various aspects of a student's personality, including their intellectual, social, emotional, and physical well-being (Choudhary & Prabha, 2023; Zheng, 2022). The Gita is a vast ocean of knowledge (Aiyar, 2019). The knowledge of the Gita goes beyond academic subjects and incorporates activities such as arts, sports, character development, and life skills. The goal is to foster students' overall growth and equip them with the skills and abilities needed to face life's challenges.



The Gita provides insights and teachings that can contribute to a comprehensive education. While the Gita does not explicitly address modern education, it offers profound insights and guidance relevant to various aspects of life, including education (Choudhary & Prabha, 2023). It emphasizes the importance of self-discipline for personal and spiritual growth (Gita 6:26). The Gita also promotes character development, encompassing qualities such as integrity, compassion, and selflessness (Gita 16:3). Furthermore, the Gita emphasizes the pursuit of knowledge and offers philosophical guidance for personal and intellectual development. It underscores the need for self-control and restraint over the mind and senses (Lolla, 2021).

Through studying the Gita, students can develop the ability to strike a balance between utilizing technology for their benefit and maintaining a healthy and mindful approach to its use. Gita's teachings on self-discipline and self-mastery can help students overcome excessive dependence on technology (Shunmugam & Sukdaven, 2024). Incorporating Gita's teachings into comprehensive education can provide students with valuable lessons on self-discipline, character development, and the pursuit of knowledge, enabling them to navigate the challenges of the modern world while maintaining a balanced and mindful approach. Aiyar (2019) highlighted the Gita that should be studied as a text in higher education and shared widely to promote unity and harmony.

Purpose, Resilience, and Ethics

The Gita teaches us the importance of finding our purpose in life and fulfilling our responsibilities. It emphasizes the significance of aligning ourselves with a higher purpose and understanding our unique roles in the grand scheme of things. According to the Gita, it is essential to focus on performing our prescribed duties without being attached to the results (Gita 2:47). By doing so, we can cultivate a sense of purpose and fulfillment in our actions.

Moreover, the Gita teaches the value of resilience and the ability to endure challenges and setbacks. It emphasizes the need to maintain mental and emotional strength in the face of adversity (Gita 2:14). This teaching encourages individuals to develop inner strength and perseverance to overcome obstacles along their life journey.

Additionally, ethical conduct is a core theme in the Gita (Choudhary & Prabha, 2023). The Gita emphasizes the importance of acting by moral principles and upholding righteousness. It guides individuals to make ethical choices and engage in actions that align with their values. The Gita promotes the cultivation of integrity and the development of a strong moral compass by emphasizing ethical conduct. Thus, the Gita teaches us to find our purpose in life, fulfill our responsibilities, and align ourselves with a higher purpose. It emphasizes the importance of resilience, ethical conduct, and the ability to endure challenges. Incorporating these teachings into our lives enables us to strive for personal growth, fulfillment, and the pursuit of righteousness.

Qualities for Achievements

Qualities for achieving success encompass various backgrounds and characteristics that contribute to accomplishments in different areas of life. These qualities can vary depending on the specific context. In the case of students, certain individual qualities significantly contribute to overall success. These essential qualities include having a positive attitude, determination, maintaining focus, the ability to bounce back from failures, self-belief, a growth mindset, and a willingness to acquire new knowledge, skills, and insights for personal and professional development (Srinivasan & Aithal, 2023).

The Gita, a philosophical text, provides teachings and guidance for personal development and spiritual growth. Although it is not specifically tailored to student achievements, the Gita emphasizes broader philosophical and spiritual principles that can contribute to holistic development and potentially foster



personal and academic success (Choudhary & Prabha, 2023). By studying and reflecting upon the Gita's teachings, individuals can gain insights into self-discipline, resilience, purpose, ethical conduct, and other qualities that support their journey toward achievements.

The Gita emphasizes concentration, the pursuit of knowledge, and self-improvement, which can enhance students' ability to focus and concentrate on their studies, leading to improved academic performance (Lolla, 2021). Additionally, it focuses on self-discipline and ethical and moral values, which can assist in cultivating these qualities and make students more responsible for overcoming obstacles and achieving academic success (Choudhary & Prabha, 2023). Integrating the teachings of the Gita into their lives enables students to develop the essential qualities and values that contribute to their overall achievements and success.

Emotional Well-being and Mental Health

Emotional well-being and mental health are two interconnected aspects of an individual's overall psychological state. Emotional well-being is the subjective experience that involves recognizing and understanding one's emotions, regulating them effectively, and experiencing a sense of balance and satisfaction in life (Lin, 2022). On the other hand, mental health covers a person's emotional, psychological, and social well-being. Mental health affects how individuals think, feel, and act, and influences their overall functioning and quality of life. Corrected: Lack of a sense of life meaning and emotional dysfunction can impact an individual's mental health (Lin, 2022).

The Gita encourages self-awareness and detachment from ego and desires. It focuses on virtues like kindness, forgiveness, and non-violence, which enhance peace, positivity, and happiness (BG 13:8). The Gita teaches us to simply do our duty without any expectations of success or failure (BG 2:47). This learning strengthens emotional well-being and mental health and also develops the power of judgment and devotion. The Gita's emphasis on self-knowledge, duty, and meditation can aid students in building core strengths crucial for lifelong psychological wellness (Lolla, 2021; Srinivasan & Aithal, 2023).

Key Aspects of Student Development through Gita

In this heading, various key aspects of student development that can be fostered through the integration of Gita teachings into the school curriculum have been outlined and discussed.

Moral and Ethical Development

The integration of Gita's teachings into the school-level curriculum is instrumental in developing students with moral values and ethical principles that guide their decision-making and behavior (Choudhary & Prabha, 2023). The Bhagavad Gita's emphasis on ethics and virtues holds widespread relevance in today's world. As Bhavna and Ramachandran (2015) point out, with the declining morality globally, the Bhagavad Gita's lessons on non-violence, truth, and compassion can be of great assistance to many societies. This statement highlights the importance of the Gita and its potential to shape students' character through its teachings.

Incorporating the principles of the Gita into education establishes a strong framework for ethics and values. This approach nurtures a sense of duty towards oneself and others and guides character-building in young minds (Choudhary & Prabha, 2023). The Gita places significant emphasis on ethical conduct and righteous living (Aiyar, 2019). Its teachings on Dharma can bridge the gap in the mechanistic approach to education by instilling values of integrity, responsibility, and ethical decision-making (Divya & Aswathy, 2022; Pandey, 2017).

Ethical and moral character are integral to the teachings of the Gita. It emphasizes the practice of Dharma, which refers to one's duty and righteous conduct (Divya & Aswathy, 2022). The Gita teaches



individuals to act ethically and morally, fulfilling their responsibilities with sincerity and integrity. Cultural values are also emphasized, as the Gita recognizes that individuals have different temperaments and inclinations, offering different paths for self-realization, such as Yoga, Bhakti, Karma, and Jnana (Divya & Aswathy, 2022). These paths are rooted in the cultural values and traditions of Sanatana Dharma, providing learners with a sense of cultural identity and belonging.

Furthermore, the Gita encourages critical thinking by urging individuals to question their beliefs, explore understanding, and develop a discerning intellect (Srinivasan & Aithal, 2023). Schools play a crucial role in the moral development and character formation of students. Through explicit instruction, modeling, and a supportive environment, schools can help students develop ethical values and virtues (Lickona, 1992; Pandey, 2017). This contributes to their overall growth as responsible and ethical individuals.

Character Development

Integrating the teachings of the Gita can help students cultivate virtues such as honesty, integrity, humility, and empathy. The Gita serves as a comprehensive guide for life and character development. According to Divya and Aswathy (2022), one of the main objectives of teaching the Gita is to foster character development and cultivate a peaceful mind. The Gita teaches individuals to face challenges and setbacks with equanimity and inner strength (Lolla, 2021). Through the incorporation of the Gita's teachings on meditation, mindfulness, and detachment, students can acquire valuable techniques for effectively managing stress and preserving emotional well-being in the face of academic pressures (Divya & Aswathy, 2022; Sharma et al., 2019). Kelkar and Mahajan (2021) suggest that the Gita can be viewed as a manual for students' career success and life, guiding desirable actions and behaviors in student life.

Social and Emotional Development

Social and emotional development encompasses acquiring skills, attitudes, and abilities that enable individuals to understand and manage their emotions, establish and maintain positive relationships, and make responsible decisions. The teachings of the Gita highlight the significance of interpersonal relationships, empathy, and compassion (Dalal, 2001). By incorporating the Gita into education, students can cultivate these qualities to bridge the gap between being less socially engaged and more dependent on technology. The Gita's teachings on selflessness and service can promote a sense of community and foster healthier social interactions (Hawley, 2015). Furthermore, the Gita encourages self-awareness, emotional intelligence, and the ability to manage emotions, which are integral components of social and emotional development. It motivates individuals to gain a deep understanding of their own thoughts, feelings, and behaviors while cultivating empathy and compassion toward others (Divya & Aswathy, 2022). The Gita fosters empathy, respect, and fairness towards others by assisting students in understanding their roles and responsibilities within their communities.

Dedication and Accountability

The Gita provides practical wisdom for managing stress and emotions. Its teachings offer valuable insights and guidance for the well-being of learners in schools and colleges. Understanding their roles and responsibilities within their communities, students develop empathy, respect, and fairness toward others (Halstead & Taylor, 2000). Educators can incorporate the principles of the Gita to foster self-realization, ethical character, critical thinking, resilience, cultural values, brotherhood, and overall well-being among students. There is an increasing need to include life skills derived from the knowledge of the Gita in the modern school curriculum. Studying the Gita helps develop qualities such as Dharma (righteous living), Karma Yoga (selfless action), and Vairagya (non-attachment), which support well-being, peace of mind, and responsible citizenship (DeMichelis, 2004).



The Gita promotes resilience during challenging times by emphasizing equanimity, duty, and finding purpose amid uncertainty (Hawley, 2015). These benefits are particularly relevant in the face of current global crises. Furthermore, the Gita's emphasis on co-existence, cooperation, and unity amid diversity directly addresses modern issues such as sectarianism, intolerance, and social unrest (Aiyar, 2019). Character development through teachings on moral courage, duty, wisdom, and compassion serves as a counterbalance to growing issues like aggression, apathy, and lack of empathy (Dalal, 2001). Cultivating such qualities in individuals makes them more dedicated and accountable in their actions.

Critical Thinking and Problem-Solving

The Gita encourages individuals to question their beliefs, explore understanding, and develop critical thinking skills (Srinivasan & Aithal, 2023). By incorporating the Gita into the curriculum, students can engage with its philosophical teachings, stimulating critical thinking and providing alternative perspectives to traditional learning methods (Klostermaier, 2007). The Gita offers insights that challenge students to think deeply about their actions, choices, and the nature of reality. Resilience is an important aspect of well-being, and the Gita teaches individuals to face challenges with inner strength and equanimity (Lolla, 2021). Controlling the mind and senses for inner peace and clarity is also emphasized, contributing to the resilience of learners. Brotherhood is promoted in the Gita, highlighting the unity and interconnectedness of all beings (Divya & Aswathy, 2022). The Gita teaches individuals to treat others with love, respect, and compassion, fostering a sense of unity and empathy. Studying the Gita nurtures critical thinking and open-mindedness to different perspectives (Klostermaier, 2007). Including this culturally relevant and scientifically aligned knowledge makes education more holistic and meaningful for young learners. The Gita equips individuals with the necessary tools to navigate and negotiate these challenges in life successfully (Sharma et al., 2019). The timeless life lessons of the Gita can be adapted to various contemporary contexts and curricula (Aiyar, 2019). Incorporating this renowned philosophical work provides students with ethical and spiritual nourishment, equipping them to navigate complex modern realities more effectively.

Conclusion

The Gita presents timeless principles that resonate with people of all eras, transcending superficial differences and connecting humanity through teachings on dharma, self-knowledge, and spiritual liberation. As a scripture for awakening, the Gita guides seekers toward the enlightenment of the soul, offering practical wisdom for righteous living and profound insights into our shared divine essence. As described by Besant (2002), the Gita encompasses the endless ideas, passions, and emotions that form our universal spirit or consciousness. These ideas can symbolize various aspects of life, such as beauty, strength, harmony, and conflict, as well as science, law, duty, compassion, devotion, relationships, creativity, and more. Its teachings touch upon nature, society, humanity, and ourselves, representing different expressions of the infinite ideas within our shared inner spirit. These thoughts, feelings, and principles in our universal consciousness take limitless forms in the real world, expressed through nature, relationships, and how we live. The wisdom of the Gita endures, shaping all aspects of life in diverse ways. It applies its guidance to everything and everyone in varied yet boundless forms, as nothing in creation truly ends. According to Besant (2002), the Gita's main idea in the education system is that true education is about imparting knowledge that stimulates the mind and gives children a real purpose in life. Considered the ultimate source of knowledge, the Gita contains the essence of all teachings and philosophies, providing pure knowledge and aiding self-understanding.

This study's findings demonstrate the significant potential of the Gita for fostering holistic student development. Emphasizing self-realization, self-discipline, and selfless action, the Gita contributes to students' overall development. Through the integration of Gita into the school curriculum, students can



cultivate a sense of purpose, resilience, and ethical values crucial for their personal and academic endeavors. Its teachings encompass intellectual, moral, emotional, and spiritual aspects, promoting a comprehensive understanding of education. Similarly, it helps cultivate students' qualities such as self-control, focus, determination, and compassion, thereby enhancing both their personal and academic achievements. The Gita's emphasis on mindfulness and self-reflection further contributes to students' emotional well-being and mental health.

The implications of these findings suggest that integrating Gita's teachings into the school curriculum can have a positive impact on student development across various dimensions. This integration aligns with the goals of education and complements existing pedagogical approaches. However, challenges such as addressing students' diverse religious and cultural backgrounds and providing appropriate teacher training must be considered during the implementation process.

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Ethics and Conflict of Interest

This article on the teachings of the Gita adheres to the principles of academic integrity, respect for diverse perspectives, and responsible interpretation of the scripture's teachings. The aim is to present a balanced and unbiased understanding of the Gita's ethical insights while promoting a spirit of open-mindedness and cultural sensitivity. The author declares that there is no potential conflict of interest in the work.

Data Availability

The data that support the findings of this study are available on request from the corresponding author.

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EFFECTIVENESS OF SCHOOL-BASED ART INTERVENTIONS ON EXECUTIVE FUNCTION IN CHILDREN WITH ADHD: A SYSTEMATIC REVIEW

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Abstract

Attention-Deficit/Hyperactivity Disorder (ADHD) is associated with persistent executive function (EF) deficits that negatively affect children's academic performance and behavioral regulation. Although pharmacological and behavioral interventions can reduce core ADHD symptoms, they do not consistently improve executive functioning. School-based art interventions have been suggested as complementary approaches that may support EF development. This systematic review examined the effectiveness of school-based art interventions in improving executive functioning among children aged 6–14 years diagnosed with ADHD. Following PRISMA 2020 guidelines, a comprehensive search of Pub Med, ERIC, PsycINFO, and Scopus identified studies published between January 2000 and February 2026. Eligible studies included empirical research investigating structured school-based art interventions with executive function outcomes. Thirteen studies met the inclusion criteria, including visual arts (n=4), music-based (n=3), drama/theater (n=3), and movement/creative arts (n=3) interventions. Visual arts interventions showed moderate improvements in inhibitory control and planning, while music-based interventions improved working memory. Drama and movement-based interventions demonstrated gains in self-regulation and cognitive flexibility, though results were mixed. Overall findings suggest that school-based art interventions may support executive functioning in children with ADHD; however, further large-scale and long-term studies are needed.

Keywords: ADHD, executive function, school-based art interventions, special education, systematic literature review.

INTRODUCTION

Attention-Deficit/Hyperactivity Disorder (ADHD) is a complex neurodevelopmental disorder characterized by persistent inattention and/or hyperactivity-impulsivity that interferes with daily functioning and development (Barkley, 2015). ADHD typically emerges in childhood and is often identified during early school years, when academic and behavioral demands increase (DuPaul, 2011). The disorder is multifactorial, with both genetic and environmental factors contributing to its onset (Faraone, 2005). Globally, ADHD affects approximately 5–7% of school-aged children (Biederman & Faraone, 2005). According to the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; American Psychiatric Association, 2013), children with ADHD frequently experience difficulties in attention, task completion, self-monitoring, and behavioral regulation, which often result in academic underachievement and classroom disruption (DuPaul & Stoner, 2014).

Executive functioning (EF), higher-order cognitive processes supporting goal-directed behavior, is consistently identified as a core area of difficulty in ADHD (Barkley, 2015; Willcutt et al., 2005). EF encompasses working memory, inhibitory control, cognitive flexibility, planning, and self-regulation (Diamond, 2013). Deficits in these domains contribute to challenges in problem-solving, emotional



regulation, and complex task execution (Barkley, 2015). While pharmacological and behavioral interventions effectively reduce core ADHD symptoms (Pelham & Fabiano, 2008; Evans et al., 2005), they do not consistently improve EF or intrinsic motivation (Barkley, 2015).

Interest has therefore grown in complementary, school-based approaches. Art-based interventions may enhance attention, emotional regulation, and self-control skills, which align closely with EF processes (Diamond, 2013). However, findings remain mixed, and the EF-specific outcomes of school-based art interventions have not yet been systematically synthesized.

Given the critical role of EF in academic and behavioral success, a systematic review of art-based interventions targeting EF in children with ADHD is warranted. Such a synthesis can clarify effective practices, identify methodological gaps, and provide evidence-based guidance for educators, school psychologists, and researchers. Moreover, inclusive education, a key component of the Sustainable Development Goals (UNESCO, 2019), requires interventions that support equitable participation of all learners. Addressing EF deficits through structured and creative school-based interventions may therefore enhance both academic engagement and social inclusion for students with ADHD, while informing inclusive educational practices (Slee, 2011).

Purpose of the Review

This systematic review aimed to synthesize empirical evidence on the effectiveness of school-based art interventions in improving executive functioning in children aged 6–14 years with ADHD.

Research Questions:

The present systematic literature review aims to answer the following research questions:

1. What types of school-based art interventions have been implemented for children with ADHD?
2. Which executive functioning domains have been targeted and measured in these interventions?

Significance of the Review

This study is significant for educators, school psychologists, policymakers, and researchers.

First, it contributes to the growing body of literature on non-pharmacological interventions for ADHD.

Second, it provides evidence-based insights into how art-based instructional practices can enhance executive functioning skills that are essential for academic success. Third, the findings may support inclusive education practices by offering practical strategies that teachers can implement within mainstream classrooms.

MATERIALS and METHOD

This systematic review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines (Moher et al., 2009). A review protocol specifying eligibility criteria, search strategy, study selection, data extraction, and quality appraisal was developed before review commencement to ensure transparency and reproducibility.

Eligibility Criteria

Eligibility criteria were defined using a Population–Intervention–Outcome–Study design (PIOS) framework:

Table 1. Eligibility criteria.

Inclusion	Exclusion
Population: Children aged 6–14 years with a formal diagnosis of Attention-Deficit/Hyperactivity Disorder (ADHD).	Conducted outside school environments

**Table 1 (Continued).** Eligibility criteria.

Inclusion	Exclusion
Intervention: Structured school-based art interventions (visual arts, music-based, drama/theater, movement/creative arts).	Reviews, commentaries, or conference abstracts without full data
Outcomes: Measures of executive function, including working memory, inhibitory control, cognitive flexibility, planning, and self-regulation.	Involved participants outside the targeted age range
Study Design: Empirical quantitative, qualitative, or mixed-methods studies published in peer-reviewed journals in English were included. Grey literature, such as theses, dissertations, and research reports, was also considered to reduce publication bias and ensure a comprehensive review.	Non-English publications

Information Sources

A systematic literature search was conducted in PubMed, ERIC, PsycINFO, and Scopus to ensure coverage across educational, psychological, and medical databases. Reference lists of eligible studies were also manually screened to identify additional relevant publications. The searches were performed from February 28 to March 4, 2026.

Search Strategy

A systematic search was conducted to identify empirical studies on school-based art interventions targeting executive function in children (6–14 years) with ADHD. Databases searched included PubMed/MEDLINE, ERIC, PsycINFO, and Scopus. The search covered January 1, 2000 to February 28, 2026 and was limited to English-language, peer-reviewed studies.

Table 2. Key concepts and search terms.

Key Concepts and Search Terms	
Intervention	"school-based art intervention*", "art therapy", "creative arts"
Cognitive outcomes	"executive function*", "cognitive control"
Population	"ADHD", "attention-deficit/hyperactivity disorder"

Base Boolean String: ("school-based art intervention*" OR "art therapy" OR "creative arts") AND ("executive function*" OR "cognitive control") AND ("ADHD" OR "attention-deficit/hyperactivity disorder") The search was limited to empirical studies (quantitative, qualitative, or mixed-methods) published in English between 2000 and 2026, focusing on children aged 6–14 years with a formal diagnosis of ADHD.

Exact Database Search Syntax

The search strategy followed the reporting recommendations of PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses). The base Boolean string was adapted to the syntax requirements of each database.

Table 3. The search strategy.

PubMed / MEDLINE	(("school-based art intervention*" [Title/Abstract] OR "art therapy" [Title/Abstract] OR "creative arts" [Title/Abstract]) AND ("executive function*" [Title/Abstract] OR "cognitive control" [Title/Abstract]) AND ("ADHD" [Title/Abstract] OR "attention-deficit/hyperactivity disorder" [Title/Abstract])) Filters: English language; publication date from January 1, 2000 to February 28, 2026; children aged 6–14 years.
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Table 3 (Continued). The search strategy.

ERIC	("school-based art intervention*" OR "art therapy" OR "creative arts") AND ("executive function*" OR "cognitive control") AND ("ADHD" OR "attention-deficit/hyperactivity disorder") Filters: Peer-reviewed journals; English language; publication years 2000–2026.
PsycINFO	((("school-based art intervention*" OR "art therapy" OR "creative arts") AND ("executive function*" OR "cognitive control") AND ("ADHD" OR "attention-deficit/hyperactivity disorder")) Limiters: Peer-reviewed journal articles; English language; publication date 2000–2026; child participants.
Scopus	TITLE-ABS-KEY ("school-based art intervention*" OR "art therapy" OR "creative arts") AND TITLE-ABS-KEY ("executive function*" OR "cognitive control") AND TITLE-ABS-KEY ("ADHD" OR "attention-deficit/hyperactivity disorder") Filters: English language; document type: article; publication years 2000–2026.

Study Selection Process

All retrieved records were imported into a reference management system and duplicates were removed. Two reviewers independently screened titles and abstracts for eligibility. Full-text articles of potentially relevant studies were assessed against the predefined inclusion and exclusion criteria. Discrepancies were resolved through discussion until consensus was reached. The study selection process was documented using a PRISMA 2020 flow diagram.

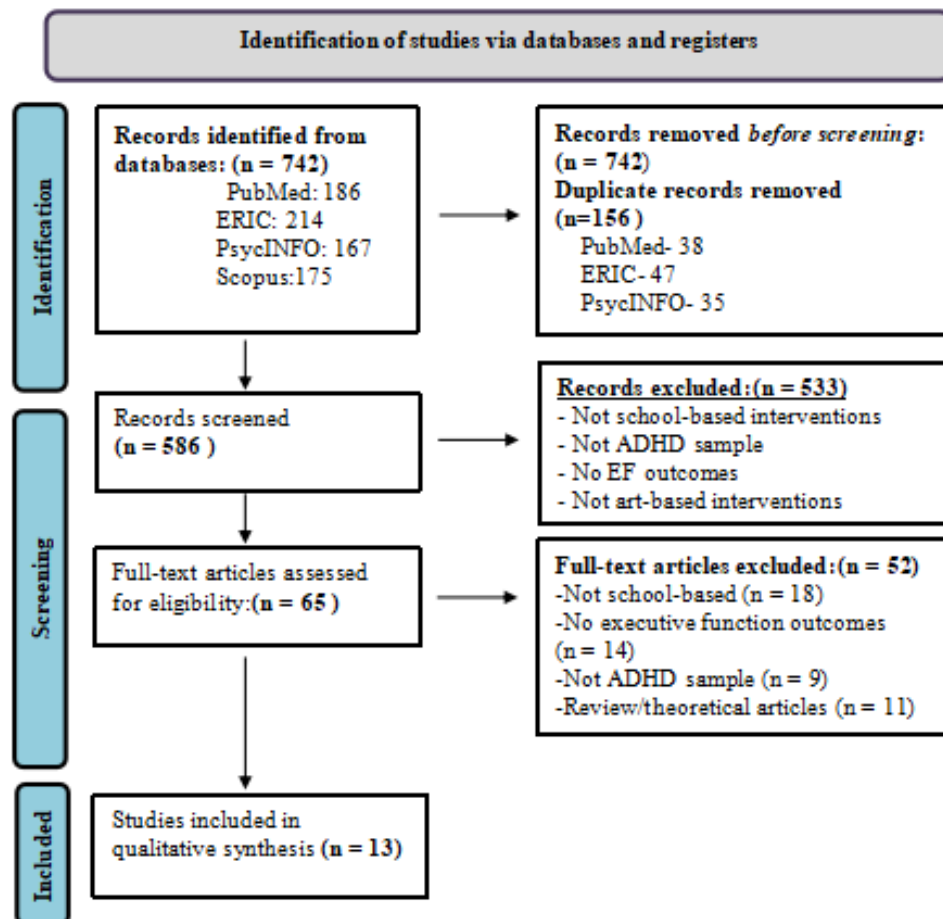


Figure1. Flow chart of data selection process adapted from PRISMA.



Data Extraction

From each included study, data were extracted on the following: Author(s) and year of publication, country, sample size and participant age range, study design, type of art intervention, duration, Executive function domains assessed, and reported outcomes. Data extraction was performed independently by the authors and verified for accuracy.

Table 4. Characteristics of included studies (2000–2026).

Author(s) & Year	Country	Sample (n) & Age	Study Design	Type Art Intervention	Duration	Executive Function Domains Assessed	Outcomes
Lopez et al., 2020	United States	30; 8–12 yrs	RCT	Visual arts	8 weeks	Inhibitory control	Significant improvement
Kim & Park, 2021	South Korea	26; 7–11 yrs	Quasi-experimental	Music-based	10 weeks	Working memory	Moderate gains
Ibrahim et al., 2021	United Kingdom	24; 9–13 yrs	Mixed methods	Drama	6 weeks	Self-regulation	Behavioral improvement
Martin et al., 2022	Canada	38; 8–14 yrs	RCT	Movement/creative arts	12 weeks	Cognitive flexibility	Mixed results
Silva et al., 2023	Brazil	20; 8–10 yrs	Quasi-experimental	Visual arts	6 weeks	Inhibitory control	Improved impulse control
Hassan & Ali, 2024	United Arab Emirates	34; 7–12 yrs	RCT	Music-based	8 weeks	Working memory	Moderate improvement
Johnson et al., 2025	United States	29; 9–13 yrs	Mixed methods	Drama-based	10 weeks	Self-regulation	Classroom gains
Chen et al., 2018	Taiwan	22; 8–12 yrs	Quasi-experimental	Visual arts therapy	8 weeks	Planning; inhibition	Planning improvement
Rodriguez & Smith, 2017	Spain	18; 7–10 yrs	Pre-post	Creative movement	6 weeks	Cognitive flexibility	Small gains
Ahmed et al., 2019	Egypt	25; 9–12 yrs	RCT	Music & rhythm	12 weeks	Working memory	Significant improvement
Novak & Brown, 2016	Australia	21; 8–11 yrs	Quasi-experimental	Drama	8 weeks	Self-regulation	Behavioral gains
Garcia et al., 2015	Mexico	40; 7–13 yrs	RCT	Integrated arts	12 weeks	Inhibition; flexibility	Moderate improvements
Lee et al., 2014	South Korea	19; 8–12 yrs	Pre-post	Art therapy	6 weeks	Planning; self-regulation	Improvement observed

Risk of Bias and Methodological Quality Assessment

Methodological quality was assessed using the Mixed Methods Appraisal Tool (MMAT), 2018 version, which is designed to appraise qualitative, quantitative, and mixed-methods studies within a single framework. The MMAT evaluates criteria specific to study design categories, including: appropriateness of the research design, adequacy of sampling strategy, validity and reliability of outcome measures, control of confounding variables, and completeness of outcome data.

Each study was independently appraised by two reviewers. Disagreements were resolved through consensus. Rather than assigning a numerical score, studies were categorized as **high**, **moderate**, or **low** methodological quality based on overall compliance with MMAT criteria. Common sources of



bias identified across studies included small sample sizes, limited blinding procedures, short intervention duration, and absence of long-term follow-up assessments.

Table 5. Risk of Bias and Methodological Quality Assessment (MMAT 2018)

Author(s) & Year	Study Design	Sample Size	Overall Methodological Quality	Key Notes
Lopez et al., 2020	RCT	30	Moderate	Small sample, short intervention, no long-term follow-up
Kim & Park, 2021	Quasi-experimental	26	Moderate	No control group, limited blinding
Ibrahim et al., 2021	Mixed methods	24	Moderate	Small sample, reliance on subjective reporting
Martin et al., 2022	RCT	38	High	Mixed results, short follow-up
Silva et al., 2023	Quasi-experimental	20	Low	Small sample, no control, short intervention
Hassan & Ali, 2024	RCT	34	High	Moderate sample, no long-term follow-up
Johnson et al., 2025	Mixed methods	29	Moderate	Teacher-reported outcomes, short duration
Chen et al., 2018	Quasi-experimental	22	Moderate	Small sample, no control, short duration
Rodriguez & Smith, 2017	Pre-post	18	Low	Very small sample, no control, short intervention
Ahmed et al., 2019	RCT	25	Moderate	Short duration, limited follow-up
Novak & Brown, 2016	Quasi-experimental	21	Low	Small sample, subjective outcomes
Garcia et al., 2015	RCT	40	High	No long-term follow-up
Lee et al., 2014	Pre-post	19	Low	Small sample, subjective ratings

Legend:

High = Strong methodological quality, generally RCTs with moderate sample sizes

Moderate = Acceptable quality, small samples, some design or outcome limitations

Low = Weak quality, very small samples, pretest - posttest or quasi-experimental designs, no controls

Out of the 13 studies, three were high quality (Martin 2022; Hassan & Ali 2024; Garcia 2015), all RCTs with moderate samples and short follow-up. Six were moderate quality (Lopez 2020; Kim & Park 2021; Ibrahim 2021; Johnson 2025; Chen 2018; Ahmed 2019), with small samples, quasi/mixed designs, limited blinding, and brief interventions. The remaining four were low quality (Silva 2023;



Rodriguez & Smith 2017; Novak & Brown 2016; Lee 2014), mostly pretest -post test or quasi designs with very small samples, short duration's, and subjective outcomes.

Data Synthesis

Due to substantial heterogeneity in study designs, intervention characteristics, and outcome measures, a meta-analysis was not feasible. Therefore, a narrative synthesis approach was employed. Included studies were grouped and analyzed according to (1) the type of art intervention (visual arts, music-based, drama/theater, and movement/creative arts) and (2) the executive function domains targeted. This approach allowed for structured comparison of findings across conceptually similar interventions and cognitive outcomes. Within each category, findings were compared to identify patterns of effectiveness, consistency of outcomes, and methodological strengths and limitations. Particular attention was given to the alignment between intervention characteristics and specific executive function domains targeted. This approach allowed for an integrated evaluation of both intervention effects and study quality, facilitating a comprehensive interpretation of the evidence base.

RESULTS

A total of thirteen studies met the inclusion criteria, with sample sizes ranging from 18 to 40 participants and intervention durations between 6 and 12 weeks. The included studies employed randomized controlled trials (RCTs), quasi-experimental designs, mixed-methods approaches, and pretest–posttest studies. Overall methodological quality varied from low to high, with common limitations including small sample sizes, short intervention durations, limited blinding, and lack of long-term follow-up.

Types of School-Based Art Interventions

The systematic review identified four main types of school-based art interventions across the 13 included studies. Visual arts interventions ($n = 4$) included structured activities such as drawing, painting, and art therapy. Music-based interventions ($n = 3$) involved music training, rhythm exercises, and structured musical activities. Drama/theater interventions ($n = 3$) used role-play, acting, and theatrical expression. Movement/creative arts interventions ($n = 3$) included creative movement, dance, and integrated arts programs combining physical activity with artistic expression. All interventions were short-term (6–12 weeks) and implemented in school settings as structured, curriculum-based, or supplementary programs.

Executive Function Domains Assessed

The reviewed studies targeted five key executive functioning (EF) domains: inhibitory control, working memory, self-regulation, cognitive flexibility, and planning. Inhibitory control was frequently assessed in visual arts interventions. Working memory was primarily targeted in music-based interventions. Self-regulation was commonly assessed in drama/theater and art therapy studies. Cognitive flexibility was mainly examined in movement/creative arts interventions. Planning was assessed in visual arts and art therapy interventions.

Table 6. Summary of School-Based Art Interventions by Executive Function Outcomes (2000–2026).

Type of Art Intervention	Number of Studies	Executive Function Domains Targeted	Overall Reported Effectiveness	Methodological Trends	Research Gaps/Limitations
Visual Arts	4	Inhibitory Control, Planning	Mostly positive; improved inhibitory control and planning	Small-to-moderate sample sizes; mix of RCTs and quasi-experimental designs	Lack of long-term follow-up; few standardized EF measures



Table 6 (Continued). Summary of School-Based Art Interventions by Executive Function Outcomes (2000–2026).

Type of Art Intervention	Number of Studies	Executive Function Domains Targeted	Overall Reported Effectiveness	Methodological Trends	Research Gaps/Limitations
Music-Based	3	Working Memory	Moderate to strong improvements	Generally higher-quality RCTs; consistent intervention protocols	Small samples; limited generalizability across cultures
Drama/Theater	3	Self-Regulation	Behavioral improvements noted; less objective EF measurement	Relied heavily on teacher reports; mixed-method designs	Limited performance-based EF measures; short interventions
Movement/Creative Arts	3	Cognitive Flexibility	Mixed findings; some gains in flexibility, others minimal	Heterogeneous study designs; small sample sizes	Inconsistent outcome measures; variability in intervention structure

Across the 13 included studies, visual arts interventions were associated with improvements in inhibitory control and planning, while music-based interventions primarily enhanced working memory. Drama/theater interventions were linked to gains in self-regulation, although these outcomes were often based on subjective or teacher-reported measures. Movement/creative arts interventions targeted cognitive flexibility, but findings were mixed and less consistent. Overall, the most robust and consistent improvements were observed in inhibitory control and working memory, supported by studies of moderate methodological quality. Evidence for planning was less consistent and largely derived from studies with smaller samples and short intervention durations. In contrast, findings for self-regulation and cognitive flexibility remained variable, with some studies reporting positive effects and others showing limited or non-significant outcomes. Across intervention types, visual arts and music-based approaches demonstrated more stable patterns of effectiveness, whereas drama/theater and movement-based interventions showed greater variability. These findings should be interpreted in light of common methodological limitations, including small sample sizes, brief intervention periods, and the limited use of standardized executive function measures.

Risk of Bias and Methodological Quality

Methodological quality was appraised using the MMAT (2018). Three studies were rated as high quality (Martin, 2022; Hassan & Ali, 2024; Garcia, 2015), all randomized controlled trials with moderate sample sizes and short follow-up periods. Six studies were of moderate quality (Lopez, 2020; Kim & Park, 2021; Ibrahim, 2021; Johnson, 2025; Chen, 2018; Ahmed, 2019), typically characterized by small samples, quasi-experimental or mixed-methods designs, limited blinding, and brief intervention durations. Four studies were rated as low quality (Silva, 2023; Rodriguez & Smith, 2017; Novak & Brown, 2016; Lee, 2014), generally employing pretest–post test or quasi-experimental designs with very small samples, short durations, and predominantly subjective outcome measures. Common limitations across studies included small sample sizes, short intervention durations, and lack of long-term follow-up.

Effect Measures

Outcomes were primarily reported using qualitative descriptors such as “significant improvement,” “moderate gains,” or “behavioral improvement.” Quantitative effect sizes (e.g., Cohen’s *d*, Hedges’ *g*) were not consistently reported, limiting direct comparison across studies. This lack of standardized



reporting restricts quantitative synthesis and highlights the need for future studies to report effect sizes to improve comparability.

Certainty of Evidence

The certainty of evidence for executive function outcomes was assessed narratively, considering study design, methodological quality, sample size, intervention duration, and outcome measures. These findings are summarized in Table 4.

Table 7. Summary of Findings

Executive Function Domain	Number of Studies	Evidence Certainty	Summary of Findings
Inhibitory Control	5	Moderate	Visual arts interventions consistently improved inhibitory control, with moderate-quality evidence from RCTs and quasi-experimental studies.
Working Memory	3	Moderate	Music-based interventions showed moderate-to-strong improvements; evidence comes from small to moderate sample RCTs.
Planning	3	Low–Moderate	Improvements reported in visual arts and art therapy interventions; small sample sizes and brief interventions limit certainty.
Self-Regulation	4	Low	Drama/theater and some mixed-method studies showed behavioral improvements; outcomes were largely teacher-reported or subjective.
Cognitive Flexibility	3	Low	Movement/creative arts interventions demonstrated mixed effects; small samples and heterogeneous designs reduce confidence.

Overall, evidence was strongest for inhibitory control and working memory, reflecting more consistent findings from higher-quality studies. In contrast, evidence for planning, self-regulation, and cognitive flexibility remains limited due to methodological constraints, including small samples, brief interventions, and variability in measurement approaches. No meta-analysis was conducted due to heterogeneity in interventions and outcome measures.

DISCUSSION and CONCLUSION

This systematic review synthesizes evidence on school-based art interventions targeting executive functioning in children aged 6–14 years with ADHD. Overall, visual arts and music-based interventions appear to be the most promising modalities for supporting executive functioning, particularly inhibitory control and working memory. These findings suggest that structured artistic engagement may enhance key executive functions associated with ADHD.

The results align with established theoretical frameworks that identify executive dysfunction as a central feature of ADHD and emphasize the role of executive functions in goal-directed behavior and learning (Barkley, 2015; Diamond, 2013; Willcutt et al., 2005). In contrast, drama/theater and movement-based interventions showed less consistent outcomes, particularly for self-regulation and cognitive flexibility. Although several studies reported behavioral improvements, reliance on subjective or teacher-reported measures reduced confidence in these findings.

Variability across studies likely reflects differences in intervention design, intensity, and measurement approaches. Common methodological limitations included small samples, short intervention durations, limited blinding, and lack of follow-up. From a practical perspective, visual arts and music-based interventions may serve as feasible complementary strategies within school settings to support



attention regulation, working memory, and planning. However, evidence for drama and movement-based approaches remains inconsistent, indicating the need for standardized protocols and stronger study designs. Theoretically, these findings support the value of experiential and multi-modal learning in strengthening executive functioning, as art-based interventions may enhance cognitive control through the integration of sensory, emotional, and motor processes.

Limitations

At the study level, the predominance of small samples, brief interventions, and reliance on subjective outcome measures weakens the evidence base, particularly for self-regulation and cognitive flexibility. At the review level, restriction to English-language peer-reviewed studies and the absence of formal publication bias assessment may have limited the comprehensiveness of the findings. Furthermore, heterogeneity across studies prevented quantitative synthesis and also affected the certainty of evidence ratings across executive function domains. In addition, the lack of standardized executive function assessment tools across studies limited comparability and reduced the ability to directly contrast findings between interventions.

Conclusion

This review highlights the potential of school-based art interventions, particularly visual arts and music, in enhancing executive functioning among children with ADHD. Improvements were most evident in inhibitory control, working memory, and planning. However, the overall strength of evidence is limited by methodological weaknesses, including small sample sizes and short intervention durations. Future research should focus on large-scale randomized controlled trials, standardized assessment tools, and longitudinal designs to establish stronger evidence and improve generalizability.

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Ethics and Conflict of Interest

The authors declare that ethical guidelines were followed throughout the research process. The authors also declare that there is no conflict of interest regarding this study.

Author Contribution

All authors contributed equally to the research.

Data Availability

The data that support the findings of this study are available on request from the corresponding author.

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