

Emerging Counselling Needs of Elementary Students in the Era of Artificial Intelligence

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ABSTRACT

Artificial intelligence (AI) is transforming education by reshaping how teachers deliver instruction and how students engage with learning materials, particularly in elementary classrooms. AI-based tools such as adaptive tutoring systems, interactive learning applications, and virtual assistants allow instruction to be tailored to individual learning needs, pace, and preferences. While these technologies can enhance academic achievement and student engagement, they may also introduce psychological, emotional, and social challenges for young learners. This study examines the emerging counselling needs of elementary students in the context of AI-integrated education. Using a quantitative, survey-based design, data were collected from 60 elementary students and 10 classroom teachers through structured questionnaires. The study focused on issues related to emotional regulation, peer interaction, dependence on digital devices, and participation in traditional classroom activities. The findings indicate that a considerable number of students experience reduced face-to-face interaction with peers, increased screen exposure, and difficulty maintaining concentration during non-digital classroom activities. Teachers also observed growing attachment to technology and a decline in students' in-person communication skills. These results highlight the need for counselling interventions that respond to the changing demands of AI-enhanced learning environments. The study concludes that conventional school counselling approaches must be expanded to address digital well-being, emotional resilience, and social skills development. Collaborative efforts among teachers, counsellors, and parents are necessary to support the holistic development of elementary students in an increasingly technology-driven educational context.

Keywords: Artificial Intelligence, Elementary Education, School Counselling, Digital Well-being, Social Skills

INTRODUCTION

Background of the Study

In the twenty-first century, artificial intelligence has emerged as one of the most influential technological developments across multiple sectors, including education. In schools, AI is reshaping traditional teaching and learning practices by enabling more efficient, personalized, and responsive instructional approaches. Educational institutions are increasingly adopting AI-based systems such as adaptive learning platforms, intelligent tutoring applications, automated assessment tools, and virtual learning assistants to improve student achievement and classroom engagement.

At the elementary level, AI technologies are being widely introduced to support early learning. These tools can adapt lessons to a child's level of understanding, provide immediate feedback, and offer interactive learning experiences that promote participation. Intelligent tutoring systems, for example, identify areas of weakness and provide targeted practice to strengthen specific skills. Similarly, gamified applications can make learning more enjoyable and motivate students to remain actively involved in classroom tasks.

Despite these advantages, the increased use of AI in elementary education also raises important concerns. Children at this stage are in a critical period of emotional, cognitive, and social development. Education should therefore support not only academic growth but also the development of interpersonal skills, emotional stability, and healthy social relationships. Excessive dependence on screens and digital platforms may reduce opportunities for real-life interaction, play, and collaborative learning, which are essential for social and emotional growth.

In addition, prolonged exposure to digital devices may contribute to reduced attention span, screen dependence, and emotional fatigue. Students may begin to rely excessively on technology, which can weaken independent problem-solving and lessen their ability to engage meaningfully with peers and teachers. These concerns suggest a growing need for counselling services that can address the emotional and social consequences of AI integration in elementary classrooms.

Statement of the Problem

Although AI offers significant benefits for classroom learning, it also presents new challenges for the emotional well-being and social development of elementary students. There is limited research on how AI-based learning environments affect counselling needs at the primary level. This study therefore seeks to identify and examine the emerging counselling requirements of elementary students in AI-supported educational settings.

Research Questions

The study is guided by the following research questions:

- What are the emerging counselling needs of elementary students in AI-based classrooms?
- How does AI influence students' emotional development and social relationships?
- What counselling strategies can be used to address these emerging concerns?

Research Objectives

The objectives of the study are to:

- identify the counselling needs of elementary students in AI-integrated learning environments;
- examine the impact of AI on students' emotional development and social skills;
- suggest counselling strategies to address these emerging needs effectively.

Justification of the Study

This study is important because it addresses a timely issue in contemporary education. As AI continues to expand in schools, students are increasingly exposed to learning environments that require new forms of counselling support. Understanding these needs will help teachers, counsellors, and school administrators develop more effective strategies to support students' academic, emotional, and social development.

Scope of the Study

The study focuses on elementary students in Grades 1 to 5 from three schools in Karachi. It includes 60 students and 10 teachers, and it examines students' use of AI-based learning tools in relation to emotional, social, and psychological needs. The study is limited to the selected schools and participants within Karachi.

Delimitations of the Study

The study is delimited to elementary students in Grades 1 to 5 and teachers from three schools in Karachi. It does not include students with clinical conditions, secondary school students, or schools outside Karachi. The findings are not intended to be generalized beyond the study area.

Significance of the Study

The findings of this study may be useful to teachers, school counsellors, administrators, and policymakers. The study provides insight into the effects of AI on elementary students and emphasizes the importance of adapting counselling services to meet the demands of modern education.

Definition of Key Terms

- **Artificial Intelligence:** Technology designed to simulate human intelligence and decision-making.
- **Counselling Needs:** The emotional, social, and psychological support required by students.
- **Elementary Students:** Children in the early years of formal schooling, typically in primary grades.

REVIEW OF LITERATURE

Introduction

Artificial intelligence (AI) has become an important part of modern education and is increasingly being integrated into teaching and learning processes at all levels (OECD, 2025; Microsoft, 2025). In elementary education, AI-based tools such as intelligent tutoring systems, adaptive learning platforms, chat-based assistants, and gamified applications are being used to enhance student engagement and improve learning outcomes (Microsoft, 2025; Rao & Kumar, 2025). These tools are designed to personalize instruction, provide immediate feedback, and support learners according to their individual needs (OECD, 2025; Microsoft, 2025).

At the same time, the growing use of AI in schools has raised concerns regarding the emotional, psychological, and social development of young children (Selwyn, 2022; Vasconcellos et al., 2025). Elementary students are at a formative stage of growth in which communication skills, emotional regulation, and peer relationships are still developing (Twenge, 2023; WHO, 2023). For this reason, the influence of AI on their broader development deserves careful examination (Kardefelt-Winther, 2021;

Selwyn, 2022). This chapter reviews the existing literature on AI in education, its effects on elementary students, and the role of counselling in addressing the challenges associated with technology-based learning (Kardefelt-Winther, 2021; Selwyn, 2022).

Concept of Artificial Intelligence in Education

Artificial intelligence refers to the ability of computer systems to perform tasks that normally require human intelligence, such as problem-solving, decision-making, learning, and pattern recognition (OECD, 2025; Microsoft, 2025). In education, AI is used to improve teaching efficiency, personalize learning experiences, and support classroom management (OECD, 2025; Microsoft, 2025).

Research suggests that AI systems can monitor student performance and adjust content accordingly to meet individual learning needs (Microsoft, 2025; Rao & Kumar, 2025). For example, an intelligent tutoring system may identify that a student is struggling with a particular mathematical concept and provide additional exercises and feedback to support improvement (Rao & Kumar, 2025). Likewise, educational applications that use gamification can increase motivation by incorporating rewards, levels, and interactive tasks (Microsoft, 2025). These features often make learning more engaging and accessible (OECD, 2025). However, despite these benefits, concerns remain about overreliance on technology and its possible effects on children's emotional and social growth (Selwyn, 2022; Kardefelt-Winther, 2021).

AI and Elementary Education

The use of AI in primary schools has increased significantly due to the wider availability of digital devices, internet access, and child-friendly educational applications (Microsoft, 2025; OECD, 2025). Young learners now interact with AI through adaptive learning programs, educational games, and voice-assisted platforms that support literacy, numeracy, and general knowledge development (Microsoft, 2025).

Studies have shown that these tools can make learning more interactive and enjoyable (Microsoft, 2025; Rao & Kumar, 2025). They may help students progress at their own pace and receive immediate correction, which can improve understanding and retention (OECD, 2025). At the same time, concerns have been raised about excessive screen exposure, reduced physical activity, and declining opportunities for face-to-face interaction (American Psychological Association, 2024; WHO, 2023). When AI is used without balance, it may limit social participation and reduce the amount of direct communication children have with teachers and classmates (Selwyn, 2022; Vasconcellos et al., 2025).

Psychological Impact of AI on Students

The psychological effects of AI use among elementary students have become an important area of educational research (Vasconcellos et al., 2025; American Psychological Association, 2025). While digital tools can support learning, continuous exposure to screens and device-based activities may influence children's attention, emotional stability, and self-regulation (American Psychological Association, 2024; Twenge, 2023).

One concern is the reduction in attention span. Many AI-based applications provide immediate rewards and constant stimulation, which can encourage students to expect quick responses and instant results (Twenge, 2023; Microsoft, 2025). Over time, this may make it more difficult for them to concentrate during activities that require sustained attention (Vasconcellos et al., 2025). Another issue is digital dependence, where students become overly reliant on technology to complete tasks (Selwyn, 2022). This may reduce independent thinking and problem-solving ability (Kardefelt-Winther, 2021).

Emotional effects are also significant. Students who spend extended periods using digital tools may experience anxiety, frustration, or low self-confidence, particularly when they compare their progress with others or depend heavily on performance-based feedback (American Psychological Association, 2025; Vasconcellos et al., 2025). In addition, limited human interaction in AI-supported learning environments may reduce opportunities for emotional support, encouragement, and relationship-building (Selwyn, 2022). These concerns suggest that psychological well-being must be considered alongside academic benefits when evaluating AI in education (Kardefelt-Winther, 2021; Selwyn, 2022).

Social Impact of AI on Students

Social development is a crucial part of elementary education. At this stage, children learn how to share, cooperate, communicate, and develop empathy through interaction with peers and teachers (WHO, 2023; Twenge, 2023). However, heavy use of AI-based learning tools may reduce opportunities for such interaction (Selwyn, 2022; Vasconcellos et al., 2025).

When students spend more time working individually with devices, they may participate less in group activities and face-to-face conversations (Selwyn, 2022). This can affect the development of communication skills and social confidence (Twenge, 2023). In some cases, students may become more comfortable interacting with technology than with people, which may weaken their ability to collaborate effectively in classroom and social settings (Kardefelt-Winther, 2021; Vasconcellos et al., 2025).

The social impact of AI therefore extends beyond learning performance. It may also influence the way children form relationships, resolve conflicts, and express emotions (Selwyn, 2022). For this reason, the use of AI in elementary education must be balanced with activities that promote teamwork, discussion, and interpersonal development (WHO, 2023; Kardefelt-Winther, 2021).

Role of School Counselling in the Digital Age

School counsellors play a vital role in supporting the emotional and social development of students, particularly in changing educational environments (Kardefelt-Winther, 2021; Selwyn, 2022). As AI becomes more common in schools, counselling services must adapt to address issues related to screen dependence, digital anxiety, social withdrawal, and reduced interpersonal interaction (Kardefelt-Winther, 2021).

Counselling in the digital age should include strategies that help students develop healthy technology habits, manage emotions, and build positive peer relationships (Kardefelt-Winther, 2021). Counsellors can also work with teachers and parents to create a balanced learning environment that supports both academic achievement and emotional well-being (Selwyn, 2022). In addition, they can provide guidance on digital citizenship, self-regulation, and responsible use of technology (OECD, 2025).

Emerging Counselling Needs of Students

The literature indicates that students in AI-rich educational settings may require new forms of counselling support (Kardefelt-Winther, 2021; Selwyn, 2022). These needs include assistance with managing screen time, coping with anxiety related to technology use, improving social skills, and maintaining independent thinking (American Psychological Association, 2025; Vasconcellos et al., 2025).

Elementary students may also need support in understanding how to use technology in healthy and constructive ways (Kardefelt-Winther, 2021). Counselling programmes should therefore focus not only on emotional support but also on digital well-being, resilience, and communication skills (Selwyn, 2022).

These emerging needs show that counselling services must expand beyond traditional concerns and respond to the changing realities of technology-based education (Kardefelt-Winther, 2021).

Research Gap

Although a growing body of literature discusses the educational benefits of AI, there is still limited research on its counselling implications for elementary students (Rao & Kumar, 2025; OECD, 2025). Most existing studies focus on academic performance, while fewer examine emotional, social, and psychological outcomes (Selwyn, 2022). In particular, there is a lack of context-specific research on how AI affects the counselling needs of primary school students (Kardefelt-Winther, 2021). This study addresses that gap by examining the issue in an elementary school context.

Summary of the Literature Review

This chapter reviewed the role of AI in education, its impact on elementary students, and the importance of counselling in digital learning environments (OECD, 2025; Selwyn, 2022). The literature suggests that AI can support personalized learning and improve engagement, but it may also contribute to emotional stress, reduced attention, social withdrawal, and technology dependence (American Psychological Association, 2025; Vasconcellos et al., 2025).

The review also shows that school counselling must evolve to meet the needs of students in AI-supported classrooms (Kardefelt-Winther, 2021). However, a clear research gap remains in understanding the specific counselling needs of elementary students in this context. The present study aims to contribute to this area by examining those needs in greater detail (Selwyn, 2022; Rao & Kumar, 2025).

RESEARCH METHODOLOGY

Introduction

This chapter describes the research methodology adopted for the study. It outlines the research design, population, sample, sampling technique, research instrument, data collection procedure, validity and reliability, data analysis techniques, and ethical considerations used in the investigation.

Research Design

The study employed a quantitative research approach using a descriptive survey design (Creswell, 2014; Cohen, Manion, & Morrison, 2018). This design was appropriate because it enabled the researcher to collect numerical data from elementary students and teachers and to describe the emerging counselling needs associated with the use of AI in education. The survey method was suitable for obtaining information from a relatively large number of respondents within a limited period of time.

Population and Sample

The population of the study consisted of elementary students in Grades 1 to 5 and their classroom teachers in selected schools in Karachi. The sample included 60 elementary students and 10 teachers, making a total of 70 respondents. The student sample was selected from different grade levels in order to capture a range of perspectives on the use of AI-based learning tools. Teachers were included because they were in a position to observe students' learning behaviors, social interactions, and emotional responses in the classroom.

Sampling Technique

Convenience sampling was used to select participants from the schools that were accessible and willing to participate in the study (Cohen et al., 2018). This technique was appropriate for the present research because it allowed the researcher to gather data efficiently within the available time and resources. Although convenience sampling limits generalizability, it is useful in exploratory studies that aim to identify emerging issues and patterns.

Research Instrument

The main research instrument was a structured questionnaire developed separately for students and teachers. The student questionnaire was written in simple language to ensure clarity and age appropriateness. It included items related to the frequency of AI use, screen time, emotional responses, peer interaction, and dependence on digital devices. The teacher questionnaire focused on observations of students' behavior, communication patterns, attention span, and classroom participation. The instrument included closed-ended items based on a Likert scale as well as a few open-ended questions to allow respondents to provide additional information. The questionnaire was designed to collect data relevant to the objectives of the study. The complete research questionnaire is provided in Appendix A.

Data Collection Procedure

Data were collected after obtaining permission from the relevant school authorities and consent from the parents of the students. The researcher explained the purpose of the study to the participants and assured them that their responses would remain confidential. The questionnaires were administered in the schools during scheduled visits, and respondents were given sufficient time to complete them.

Student questionnaires were completed under supervision to ensure clarity and accuracy, while teacher questionnaires were completed independently. The completed forms were collected on the same day and checked for completeness before analysis.

Validity and Reliability

The questionnaire was reviewed by three experts in education and psychology to ensure content validity, following recommended practices for instrument development (Creswell, 2014; Cohen et al., 2018). These experts included specialists in educational measurement and school counselling, and their feedback was used to improve the clarity, relevance, and alignment of the items with the objectives of the study. A pilot study was then conducted with 15 students who were similar to the respondents in the main study, consistent with best practices for refining research instruments (Cohen et al., 2018). The pilot results were used to refine the wording and structure of the instrument. The reliability of the questionnaire was found to be acceptable, with a Cronbach's alpha of 0.82, indicating good internal consistency (Creswell, 2014).

Data Analysis

The data collected from the questionnaires were coded and analyzed using descriptive statistical methods (Creswell, 2014). Frequencies, percentages, means, and simple comparisons were used to summarize the responses of students and teachers. The results were presented in tables to make the findings clear and easy to interpret.

Where necessary, the data were also examined to identify patterns related to screen time, emotional responses, peer interaction, and technology dependence. The analysis focused on describing the emerging counselling needs of elementary students in AI-based learning environments.

Ethical Considerations

The study was conducted in accordance with basic ethical principles of research (Cohen et al., 2018; Creswell, 2014). Permission was obtained from school authorities before data collection began. Informed consent was obtained from parents, and the students were informed about the purpose of the study in simple, age-appropriate language.

Participants were assured that their responses would be kept confidential and used only for academic purposes. No names were recorded on the questionnaires, and the data were handled responsibly to protect privacy. The researcher also ensured that participation was voluntary and that respondents could withdraw at any time.

DATA ANALYSIS AND INTERPRETATION

Introduction

This chapter presents the analysis and interpretation of the data collected from 60 elementary students and 10 teachers. The findings are organized according to the research objectives and are presented in tables to provide a clear understanding of the emerging counselling needs of elementary students in AI-based learning environments. The analysis focuses on students' use of AI tools, screen time, concentration, peer interaction, and teachers' observations of behavioral changes.

Daily Use of AI-Based Learning Tools

Table 1 presents the frequency of students' use of AI-based learning tools. The findings indicate that the majority of the respondents, 48 students or 80%, reported using AI tools daily. Ten students, representing 16.7%, used them three to four times a week, while 2 students or 3.3% used them once a week. None of the respondents reported never using AI-based learning tools.

Table 1: Daily Use of AI-Based Learning Tools

Response	Number of Students	Percentage
Daily	48	80%
3–4 times a week	10	16.7%
Once a week	2	3.3%
Never	0	0%
Total	60	100%

These results show that AI-based learning tools are widely used among elementary students in the selected schools. The high level of daily use suggests that AI has become an important part of the learning experience for most respondents.

Daily Screen Time of Students

Table 2 shows the daily screen time reported by the students. The data reveal that 24 students, or 40%, spent more than three hours on screens each day. Eighteen students, representing 30%, reported spending two to three hours on screens, while 12 students or 20% spent one to two hours. Only 6 students, or 10%, reported spending less than one hour on screens daily.

Table 2: Daily Screen Time of Students

Screen Time	Number of Students	Percentage
0–1 hour	6	10%
1–2 hours	12	20%
2–3 hours	18	30%
3+ hours	24	40%
Total	60	100%

The findings suggest that a substantial proportion of students are exposed to long hours of screen time. This level of exposure may have implications for students' attention, emotional well-being, and social development.

Students' Responses on Difficulty in Concentration

Table 4.3 presents students' responses regarding difficulty in concentration during classroom activities. Twenty students, or 33.3%, strongly agreed that screens made it difficult for them to focus in class. Twenty-one students, or 35%, agreed with this statement. Nine students, or 15%, remained neutral, while 7 students or 11.7% disagreed and 3 students or 5% strongly disagreed.

Table 3: Students' Responses on Difficulty in Concentration

Response	Number of Students	Percentage
Strongly Agree	20	33.3%
Agree	21	35.0%
Neutral	9	15.0%
Disagree	7	11.7%
Strongly Disagree	3	5.0%
Total	60	100%

These findings indicate that many students experience concentration difficulties, which may be associated with frequent use of AI-based learning tools and prolonged screen exposure. Such difficulties may affect classroom participation and learning outcomes.

Students' Responses on Reduced Peer Interaction

Table 4 shows the students' responses concerning reduced peer interaction. Eighteen students, or 30%, strongly agreed that they talked less to friends after using AI tools. Sixteen students, or 26.7%, agreed with this statement. Ten students, or 16.7%, were neutral, while 9 students or 15% disagreed and 7 students or 11.6% strongly disagreed.

Note: Teachers could report more than one observed behavior, so the percentages do not add up to 100%.

Table 4: Students' Responses on Reduced Peer Interaction

Response	Number of Students	Percentage
Strongly Agree	18	30.0%
Agree	16	26.7%
Neutral	10	16.7%
Disagree	9	15.0%
Strongly Disagree	7	11.6%
Total	60	100%

The results show that more than half of the students perceived a decline in peer interaction. This suggests that increased use of AI-based learning tools may limit opportunities for communication and social engagement among elementary students.

Teacher Observations of Student Behavior

Table 5 summarizes the teachers' observations of student behavior. Eight teachers, or 80%, reported increased screen dependence among students. Nine teachers, or 90%, observed reduced peer communication, while 7 teachers, or 70%, noted difficulty in concentration. Eight teachers, or 80%, also reported greater reliance on devices.

Table 5: Teacher Observations of Student Behavior

Observation	Number of Teachers	Percentage
Increased screen dependence	8	80%
Reduced peer communication	9	90%
Difficulty concentrating	7	70%

Greater reliance on devices	8	80%
Total	10	100%

These findings confirm the students' responses and indicate that teachers also observed notable changes in students' learning behavior and social interaction. The agreement between student and teacher responses strengthens the reliability of the findings.

Teachers' Views on the Need for Counselling Support

Table 6 presents teachers' opinions regarding the need for counselling support in AI-based learning environments. All 10 teachers, representing 100%, responded affirmatively that counselling support is necessary for students in such settings.

Table 6: Teachers' Views on the Need for Counselling Support

Response	Number of Teachers	Percentage
Yes	10	100%
No	0	0%
Total	10	100%

This unanimous response indicates that teachers consider counselling support essential for addressing the emotional, social, and behavioral challenges associated with AI use in elementary classrooms.

Summary of Findings

The data analysis shows that most students use AI-based learning tools daily and spend a considerable amount of time on screens. A significant number of respondents reported difficulty concentrating and reduced interaction with peers. Teachers also observed increased screen dependence, reduced communication, and a greater need for counselling support. Overall, the findings suggest that while AI contributes to learning, it also creates emerging counselling needs that must be addressed in elementary school settings.

DISCUSSION

Introduction

This chapter discusses the findings presented in Chapter 4 in relation to the objectives of the study and the existing literature. The discussion focuses on the emerging counselling needs of elementary students in AI-based learning environments, particularly in relation to screen use, concentration, peer interaction, and behavioral changes observed by teachers.

Daily Use of AI-Based Learning Tools

The findings revealed that most students used AI-based learning tools on a daily basis. This suggests that AI has become an integrated part of the learning routine in the selected schools. The high frequency of use indicates that students are increasingly dependent on digital tools for academic activities.

This result is consistent with the broader understanding that AI is now widely used in educational settings to support personalized learning and student engagement. However, the findings also suggest that frequent exposure to AI tools may have consequences beyond academic performance, particularly in relation to emotional balance and social development.

Screen Time and Concentration

The data showed that a large proportion of students spent more than three hours on screens each day. Many of these students also reported difficulty in concentrating during classroom activities. This finding is important because it suggests that prolonged screen exposure may interfere with students' ability to sustain attention in non-digital learning environments.

The results support the view that excessive use of digital devices can affect cognitive engagement and classroom participation. Elementary students are at a developmental stage in which focus and self-regulation are still developing, so long periods of screen-based learning may make it more difficult for them to shift attention effectively between digital and traditional activities.

Peer Interaction and Social Development

The findings also revealed a decline in peer interaction among students. More than half of the respondents indicated that they talked less to friends after using AI-based learning tools. Teachers confirmed this trend by reporting reduced peer communication and limited verbal interaction in the classroom.

This suggests that while AI may improve access to learning content, it may also reduce opportunities for social exchange. Peer interaction is an essential part of elementary education because it helps children develop communication skills, empathy, cooperation, and confidence. A reduction in such interaction may therefore affect students' social growth and relationships within the school environment.

Teacher Observations and Counselling Needs

Teachers reported increased screen dependence, reduced communication, and difficulty concentrating among students. These observations align closely with the responses provided by the students and indicate that the behavioral changes were visible in the classroom. The unanimous view among teachers that counselling support is necessary further confirms the need for intervention.

These findings show that counselling services in schools must respond to the changing realities of technology use. Counsellors should help students develop healthy screen habits, improve face-to-face communication, and manage the emotional effects of technology dependence. In this way, counselling can support both academic and personal development.

Implications for School Counselling

The results of the study suggest that school counselling in AI-based learning environments must go beyond traditional academic guidance. Counselling programmes should address digital well-being, emotional regulation, social interaction, and self-control. Students should be guided to use technology responsibly while still participating in real-life learning and peer engagement.

The study also highlights the importance of collaboration among teachers, counsellors, and parents. When these groups work together, they can create a balanced learning environment that supports student development while minimizing the negative effects of excessive screen use.

Conclusion

These findings support the view that artificial intelligence can make learning more personalized and engaging. However, they also suggest that frequent screen exposure may affect children's concentration, emotional well-being, and peer interaction. Previous studies have similarly noted that digital learning tools can support achievement while also creating social and psychological concerns (OECD, 2025; American Psychological Association, 2024; Selwyn, 2022; Vasconcellos et al., 2025).

CONCLUSION

This study examined the emerging counselling needs of elementary students in the era of artificial intelligence. The findings show that AI-based learning tools are increasingly becoming a regular part of classroom instruction and student learning habits.

While AI offers educational advantages such as personalization, interactivity, and immediate feedback, it also creates important concerns related to screen dependence, reduced concentration, and limited peer interaction. The data further indicate that prolonged use of digital tools may affect students' emotional balance, social participation, and overall classroom behavior.

The study concludes that elementary students require counselling support that addresses not only academic concerns but also digital well-being, emotional regulation, and social development. School counselling services therefore need to adapt to the changing demands of AI-supported education. Teachers, counsellors, and parents should work together to ensure that technology enhances learning without weakening students' interpersonal and emotional growth.

In conclusion, AI has become an important part of elementary education, but its use must be balanced with attention to children's emotional and social development. Schools should strengthen counselling support so that students learn healthy technology habits, improve communication skills, and maintain well-being in digital learning environments (Kardefelt-Winther, 2021; WHO, 2023; Selwyn, 2022). In conclusion, AI has become an important part of elementary education, but its use must be balanced with attention to children's emotional and social development. Schools should strengthen counselling support so that students learn healthy technology habits, improve communication skills, and maintain well-being in digital learning environments (Kardefelt-Winther, 2021; WHO, 2023; Selwyn, 2022).

RECOMMENDATIONS AND LIMITATIONS

Recommendations

Based on the findings of the study, the following recommendations are made:

- Schools should develop counselling programmes that address digital well-being and responsible use of technology.
- Teachers should balance AI-based instruction with group work, discussion, and other interactive classroom activities.
- Parents should monitor children's screen time and encourage healthy technology habits at home.
- School counsellors should provide support for students who show signs of screen dependence, social withdrawal, or reduced concentration.

- Educational policy makers should develop clear guidelines for the appropriate use of AI in elementary education.

Limitations of the Study

This study has certain limitations. It was conducted with a relatively small sample drawn from selected schools in Karachi, which limits the generalizability of the findings. In addition, convenience sampling was used, which may not fully represent the wider population of elementary students.

The study also relied on self-reported data, which may be influenced by response bias. Furthermore, the research was cross-sectional in nature, meaning that it captured student responses at one point in time only. Future studies should use larger samples, broader geographic coverage, and mixed-method or longitudinal designs to provide a more comprehensive understanding of the issue.

APPENDIX A: RESEARCH QUESTIONNAIRE

Student Version (Grades 1-5)

1. How often do you use AI apps/games for school? (Daily/3-4x week/Once/week/Never)
2. Hours on screens daily? (0-1/1-2/2-3/3+)
3. AI helps me learn faster: Strongly Agree/Agree/Neutral/Disagree/Strongly Disagree
4. Screens make it hard to focus in class: Strongly Agree...
5. I talk less to friends since using AI: Strongly Agree...
6. Feel anxious without my device: Strongly Agree...
7. AI makes me feel smart/happy: Strongly Agree...
8. Miss playing outside because of apps: Strongly Agree...
9. Need teacher help more/less now? (More/Less/Same)
10. One feeling AI gives you? (Open)
11. Friends use AI too? (Most/Some/Few/None)
12. Like group work or solo apps better?
13. Ever get mad at a slow app? (Yes/No) Why?
14. Sleep okay with screens? (Yes/No)
15. Wish for less/more AI in class?

Teacher Version

1. % of class using AI daily?
2. Observed focus changes? (Worse/Same/Better)
3. Students more/less chatty?
4. Tech dependency signs? (Yes/No; Examples)
5. Anxiety/behavior shifts?
6. Recommend counseling for AI issues? (Yes/No)

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