

Artificial Intelligence Mobile Based – Technology Growth Impact to Children with Special Needs

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Abstract

Artificial Intelligence (AI) mobile-based technologies emerged as transformative tools in supporting the development of children with special needs, particularly in education, communication, and behavioral management. This study examined the impact of AI-enabled mobile technology on the developmental growth of children with special needs, focusing on behavioral outcomes, domains of learning, and parental caregiving practices. A descriptive-correlational research design was employed using a survey questionnaire administered to 100 parent-respondents of children diagnosed with Global Developmental Delay (GDD) syndrome in Metro Manila. Data were analyzed using to determine significant relationships among variables. Findings revealed that AI mobile-based technologies had a significant positive impact on children's developmental growth, particularly in the psychomotor domain (48%), followed by cognitive (27%) and affective (23%) domains. Behavioral assessment showed that 90% of parents perceived positive outcomes, including increased happiness and comfort among children. The results further indicated that mobile technology played a significant role in parental caregiving, functioning as an assistive tool that enhances learning through interactive and adaptive features. Statistical analysis confirmed a significant relationship between technology usage and developmental growth in terms of performance and personality ($F = 5.582$, $p < .05$). However, concerns regarding excessive screen time and potential behavioral risks highlight the need for regulated and guided usage. Overall, the study concludes that AI-enabled mobile technologies serve as effective tools in supporting the holistic development of children with special needs when used appropriately and with parental supervision.

Keywords

Artificial Intelligence, Mobile Technology, Special Needs Education, Child Development, Parental Mediation

1. Introduction

AI mobile based technologies have become a transformative force in education, healthcare, and family support systems, particularly for children with special needs. These innovations enable adaptive learning environments, intelligent feedback systems, and assistive communication tools that cater to individual cognitive and behavioral profiles. Applications such as speech recognition systems, augmentative and alternative communication tools, and personalized learning platforms provide an opportunity for inclusive and accessible education. Recent studies indicate that AI integration enhances engagement, supports individualized instruction, and improves learning outcomes among children with developmental conditions (Holmes et al., 2019; Zawacki Richter et al., 2022). As the technology becomes more accessible, it plays a crucial role in bridging gaps in special education services.

In addition, mobile devices have become embedded in daily family life, making them a primary medium through which children interact with digital environments. For children with special needs, these technologies offer not only educational support but also behavioral regulation, emotional comfort, and communication assistance. Parents increasingly rely on mobile technology as a supplementary caregiving tool, influencing children's daily routines and developmental experiences. However, alongside these benefits, concerns regarding excessive screen exposure, dependency, and cognitive impacts necessitate a balanced understanding of its use (Muppalla et al., 2023; Willumsen

& Bull, 2020). This highlights the importance of examining both the opportunities and implications of AI enabled mobile technology in the lives of children with special needs.

The development of assistive technologies has evolved significantly with the integration of artificial intelligence into mobile platforms. Earlier technologies primarily focused on compensatory tools designed to assist specific impairments, such as communication boards or basic educational software. However, modern AI systems are capable of adaptive learning, predictive analytics, and user behavior modeling, allowing for more responsive and personalized interventions. These systems can adjust content, pacing, and instructional strategies in real time based on user interaction, making them particularly effective for children with diverse learning needs (Lazak et al., 2022; Beirat et al., 2025). This evolution has shifted the paradigm from static assistive tools to dynamic and intelligent learning environments.

Despite these advancements, the conceptualization of AI within mobile technology remains unclear in many studies. The term AI is often used broadly without specifying the underlying mechanisms such as machine learning algorithms, natural language processing, or intelligent tutoring systems. This lack of specificity limits the ability to distinguish AI enabled applications from general mobile usage. Furthermore, while existing studies highlight the benefits of technology in special education, there is limited focus on how these technologies function within home environments where parents play a central role in implementation and monitoring (Bond et al., 2021). This creates a gap between technological potential and actual usage in real world contexts.

2. Problem Formulation

2.1. Artificial Intelligence in Mobile-Based Technologies for Special Needs Education

Artificial Intelligence (AI) integrated into mobile-based technologies has emerged as a transformative force in special education, enabling more inclusive and adaptive learning environments. AI-powered systems such as intelligent tutoring platforms, speech recognition tools, and machine learning-based applications can personalize instruction according to learners' needs, abilities, and progress (Holmes et al., 2019; Zawacki-Richter et al., 2022). These technologies support differentiated instruction by analyzing user behavior and delivering real-time feedback, making them particularly beneficial for children with developmental conditions. As a result, AI contributes to reducing educational barriers and promoting accessibility.

Mobile-based AI applications have further enhanced learning opportunities for children with special needs through assistive and communication technologies. Tools such as augmentative and alternative communication (AAC) apps, adaptive learning platforms, and AI-driven feedback systems support language development, cognitive engagement, and social interaction (Sun et al., 2020; Beirat et al., 2025). These applications enable children to communicate more effectively and participate in educational activities tailored to their individual profiles. The flexibility and portability of mobile devices also allow learning to occur beyond traditional classroom settings.

In the Philippine context, the adoption of AI-enabled mobile technologies in special education is gradually increasing but remains limited. While mobile device penetration is high, challenges such as inadequate infrastructure, limited teacher training, and lack of institutional support hinder effective implementation (Department of Education, 2024; Miah, 2024). Local studies indicate that although educators recognize the benefits of digital tools, there is still a gap between availability and actual integration in teaching practices. This underscores the need for policy support and capacity-building initiatives.

2.2. Role of Mobile Technology in Family and Home Environments

Mobile devices have become deeply embedded in family life, serving as primary tools for communication, education, and entertainment. For children with special needs, mobile technologies provide not only academic support but also assistance in emotional regulation and daily routines (Muppalla et al., 2023; Dincer & Topcu, 2022). Applications designed for behavior tracking, visual scheduling, and guided activities help children manage tasks and transitions more effectively. These tools are particularly valuable in-home settings where structured support may vary.

Parents play a critical role in mediating children's use of mobile technology. Research shows that active parental involvement such as co-using apps, setting limits, and guiding content leads to more positive developmental outcomes (Swider-Cios, et al 2023; Milosevic et al., 2022). Conversely, excessive or unsupervised use may contribute to

negative effects, including dependency and reduced social interaction. Thus, parental mediation is a key factor in maximizing the benefits of technology.

In the Philippines, mobile technology is widely used across socioeconomic groups, but disparities in digital literacy and internet access affect how families utilize these tools (Miah, 2024; Albino et al., 2023). Some parents rely heavily on mobile devices as caregiving aids, while others face challenges in selecting appropriate applications. These variations highlight the importance of providing culturally relevant guidance and support for families.

2.3. Evolution of Assistive Technologies with AI Integration

Assistive technologies have evolved significantly with the integration of AI into mobile platforms, transitioning from static tools to dynamic and adaptive systems. Traditional assistive tools focused on compensating for specific impairments, whereas modern AI-enabled technologies utilize machine learning, predictive analytics, and user modeling to provide personalized support (Lazak et al., 2022; Beirat et al., 2025). These advancements allow systems to adapt to users' needs in real time, enhancing their effectiveness.

AI-driven assistive technologies can modify content, pacing, and instructional strategies based on user interactions, making them suitable for children with diverse learning needs. For example, adaptive learning systems can identify learning gaps and provide targeted interventions, while communication tools can improve interaction for children with speech difficulties (Sun et al., 2020; Zawacki-Richter et al., 2022). These features contribute to improved engagement and learning outcomes.

Despite these developments, access to advanced assistive technologies remains limited in many developing countries, including the Philippines. Factors such as cost, lack of awareness, and insufficient training hinder widespread adoption (Kim et al., 2024; Villanueva & Torres, 2021). Addressing these barriers is essential to ensure equitable access and maximize the potential of AI-enabled tools.

2.4. Conceptual and Methodological Gaps in Existing Research

One of the major challenges in existing literature is the broad and inconsistent use of the term "AI." Many studies fail to specify the underlying technologies, such as machine learning or natural language processing, making it difficult to distinguish AI-enabled applications from general digital tools (Bond et al., 2021; Zhai et al., 2021). This lack of clarity limits the ability to accurately evaluate the effectiveness of AI interventions.

Methodological inconsistencies also affect the reliability of research findings. Some studies claim to use mixed methods but rely heavily on qualitative data without sufficient quantitative validation (Papadakis et al., 2022). Additionally, improper use of statistical terminology and lack of rigorous analysis further complicate interpretation. There is a need for more robust research designs that align data collection with appropriate analytical methods.

In the Philippine setting, research on AI in special education is still emerging, with limited empirical studies available. Constraints such as funding limitations, small sample sizes, and lack of standardized instruments contribute to gaps in the literature (Zamatkeshan et al., 2024). Strengthening research frameworks is necessary to produce more reliable and generalizable findings.

2.5 Benefits and Risks of AI-Enabled Mobile Technologies

AI-enabled mobile technologies offer numerous benefits for children with special needs, including improved language development, social interaction, and cognitive engagement. Adaptive learning systems and AI-driven feedback mechanisms enhance individualized instruction and increase learner motivation (Sun et al., 2020; Zawacki-Richter et al., 2022). These tools create more engaging and responsive learning experiences.

However, excessive use of mobile technology presents potential risks. Studies have linked prolonged screen time to attention problems, reduced physical activity, and sleep disturbances (Willumsen & Bull, 2020; Muppalla et al., 2023). Children with special needs may be particularly vulnerable to these effects due to differences in sensory processing and self-regulation.

Ethical concerns, including data privacy and algorithmic bias, also need to be addressed. AI systems must be designed to ensure fairness, transparency, and protection of user data (UNESCO, 2023). Balancing benefits and risks is essential for responsible implementation.

2.6 Parental Involvement and Mediation Strategies

Parental involvement is a key determinant of how effectively children with special needs benefit from mobile technologies. Active mediation strategies, such as supervision and co-use, have been associated with improved developmental outcomes (Swider-Cios, et al, 2023). These approaches help children engage with technology in meaningful ways.

Despite this, many parents lack sufficient knowledge about AI-enabled tools, leading to inconsistent practices. Some rely on technology primarily for convenience rather than developmental support (Milosevic et al, 2022). Providing structured guidance can help parents make informed decisions.

In the Philippine context, parental practices are influenced by socioeconomic status, digital literacy, and cultural factors (Miah, 2024). Addressing these variables is essential for promoting equitable access and effective use of technology.

3. Methods

a. Research Design

b. This study used a survey approach that employed descriptive and correlational procedures. The primary purpose of the researcher was to determine the impact of AI mobile-based technology on the growth and development of children with special needs. The researcher also assessed its significance to determine whether it contributed to the influence of technology on children's developmental outcomes. The descriptive method was supplemented with documentary analysis of parents' responses regarding the performance of children with disabilities, as reflected in the accomplished survey questionnaires.

Descriptive research involves identifying and describing the current status of a phenomenon and is commonly used to gather information about existing conditions at a given time (Creswell & Creswell, 2021; Johnson & Christensen, 2019). This method was appropriate for the study as it described the current use of AI mobile-based technology and its perceived effects on children with special needs. It also allowed the researcher to explore patterns and conditions as they existed during the conduct of the study.

A correlational approach was used to examine the relationship between hours of technology usage and the behavioral impact on children with special needs. Correlational research aims to determine the degree and direction of relationships between variables without manipulating them (Creswell & Creswell, 2021; Cohen et al., 2021). It also helps explain how variation in one variable is associated with variation in another. Measures of correlation were used to determine the strength and direction of these relationships.

b. Respondents of the Study

The respondents of the study were parents of the children diagnosed with Global Developmental Delay (GDD) residing in Metro Manila and enrolled in Special Education (SPED) programs. The total population consisted of 1,000 parents-respondents. The researcher applied Slovin's formula $n = N/(1 + Ne^2)$ using a margin of error of 0.05, which resulted in a sample size of 100 respondents. To select the final sample, random sampling was employed to ensure that all members of the population had an equal chance of being included in the study representing Metro Manila.

During the sampling process, all respondents from different areas, cities, and municipalities were given equal opportunity to be selected. Their names were placed in a container, and a fishbowl technique was used for random selection. The 100 parents who were drawn from this process comprised the final respondents of the study.

4. Data Collection

a. Instrument

Data for the study were gathered using a structured survey questionnaire. The instrument elicited pertinent information such as the respondent's name, residential address, date of survey, age, civil status, gender, and relationship to the child. It also included other relevant questions related to the objectives of the study.

b. Validity and Reliability of the Instrument

Data gathering employed a single set of survey questionnaires administered to the parents. The instrument was developed by the researcher and was reviewed and approved by the advisory committee. A pre-test was conducted to improve the questionnaire, and the parents who participated in the pre-testing were not included as respondents in the actual study.

The results of the pre-test from selected 15 respondents were analyzed to ensure clarity and to determine whether the instrument could generate the necessary data for the study. The findings showed a Cronbach's alpha reliability coefficient of 0.942, indicating a high level of reliability. Generally, a Cronbach's alpha value of at least 0.70 is considered acceptable for research instruments.

5. Results and Discussion

a. Demographic Profile

Table 1 indicates that 55% of the respondents were aged 31–50 years, suggesting that most parents were in a stage of life characterized by active involvement in caregiving and decision-making. This age distribution supports the reliability of the data, as individuals in this group are more likely to engage with and manage digital technologies for their children (Milosevic et al., 2022; Swider-Cios, et al 2023). In terms of civil status, 65% of respondents were married, indicating that most children with special needs were supported within two-parent households, which is often associated with more consistent supervision and structured technology use (Dincer & Topcu, 2022). However, the presence of 17% single mothers' highlights variability in caregiving contexts, which may influence differences in technology mediation and child developmental outcomes (Muppalla et al., 2023; Willumsen & Bull, 2020).

Table 1. Age

		Frequency	Percent
Valid	18 years old and below	5	5.0
	19 to 30 years old	14	14.0
	31 to 40 years old	36	36.0
	41 to 50 years old	29	29.0
	50 years old and above	16	16.0
	Total	100	100.0

Table 2. Marital Status

		Frequency	Percent
Valid	Single Mother	17	17.0
	Married	65	65.0
	Widowed	10	10.0
	Separated	6	6.0
	Others	2	2.0
	Total	100	100.0

Table 2 indicates that 65% of the respondents were married, while 17% were single mothers, reflecting that the majority of children with special needs were raised in two-parent households. This suggests a relatively stable family structure, which is often associated with more consistent supervision and guided use of mobile technologies (Dincer & Topcu, 2022). The presence of dual-parent support may enhance the effective use of AI mobile-based applications in supporting children's developmental needs and daily routines (Milosevic et al., 2022). However, the proportion of single-parent respondents highlights the need to consider variations in caregiving dynamics, as differences in time, resources, and parental mediation may influence children's technology use and developmental outcomes (Muppalla et al., 2023).

Table 3. Gender

		Frequency	Percent
Valid	Woman	79	79.0
	Man	21	21.0
	Total	100	100.0

Table 3 showed that the majority of respondents were female, accounting for 79%, while male respondents comprised only 21% of the total sample. This indicates that mothers were more actively involved in caregiving and participation in studies related to children with special needs, which aligns with existing research emphasizing the central role of mothers in child development and technology mediation (Swider-Cios, et al 2023). The higher proportion of female respondents strengthens the reliability of insights related to daily caregiving practices and the use of AI mobile-based technologies in home settings (Milosevic et al., 2022). However, the lower representation of fathers suggests potential differences in perspectives that may not be fully captured, highlighting the need to consider gender-related variations in future studies (Dincer & Topcu, 2022).

b. Mobile Users

Table 4. Mobile Users

		Frequency	Percent
Valid	Android phones	85	85.0
	IPhone	15	15.0
	Total	100	100.0

Table 4 showed that 85% of the respondents used Android phones for their children, while only 15% used iPhone devices, indicating a strong preference for Android-based technology. This distribution suggests that affordability, accessibility, and user-friendliness were key factors influencing parents' choice of mobile devices, which is consistent with studies highlighting cost and usability as primary determinants of technology adoption (Miah, 2024). The widespread use of Android devices also implies greater exposure of children to AI-driven features such as voice assistants and adaptive applications, which can support learning and communication (Holmes, Bialik, & Fadel, 2019). Furthermore, the preference for Android may enhance the practical integration of AI mobile-based technologies in everyday settings, particularly in developing contexts where accessibility and device compatibility are critical factors (Zawacki-Richter, Marín, Bond, & Gouverneur, 2022).

c. Hour Usage

Table 5. Gadget Hour Usage

		Frequency	Percent
Valid	1 hour and below	33	33.0
	2 - 3 hours	24	24.0
	3 - 4 hours	16	16.0
	4 - 5 hours	14	14.0
	5 hours and above	13	13.0
	Total	100	100.0

Table 5 showed that 33% of the children used mobile devices for at least one hour, followed by 24% who used them for 2–3 hours, while 27% exceeded four hours of usage. This indicates that while a portion of the respondents maintained moderate screen exposure, a significant number of children experienced prolonged usage, which may have implications for their behavioral and cognitive development. Moderate use of AI-enabled mobile applications can

support learning and engagement; however, extended screen time has been associated with attention difficulties and reduced physical activity among children (Muppalla et al., 2023). These findings emphasize the importance of regulated and guided technology use, consistent with established recommendations on limiting screen exposure to promote healthy development (Willumsen & Bull, 2020; Dincer & Topcu, 2022).

d. Mobile Gadget on Parents Care

Table 6. Parents' Technique

	%
Educational purposes	8%
Strong Habits and Culture	11%
Personal and Environmental Pressure	6%
Rewards and Incentives	20%
Parenting Stress	4%
Tracking Device	4%
Device Notifications	2%
Entertainment	29%
Information and Communication	10%
Boredom and Loneliness	6%

Table 6 indicated that mobile gadgets had become a commonly used support tool in parental caregiving, with many parents utilizing them to manage their children's behavior and daily routines. This suggests that mobile devices functioned as supplementary "babysitting" tools, providing convenience and immediate engagement for children with special needs. The effectiveness of this practice may be attributed to the availability of AI-driven applications that offer interactive, adaptive, and responsive features that capture children's attention (Holmes, Bialik, & Fadel, 2019). However, reliance on mobile devices as primary caregiving tools may also raise concerns regarding reduced parent-child interaction and increased dependency on digital media (Muppalla et al., 2023; Dincer & Topcu, 2022).

e. Child Behavior

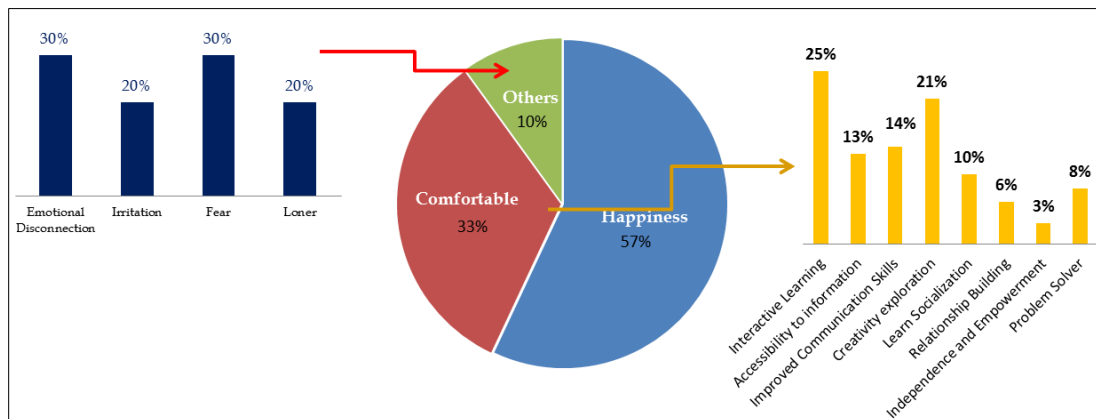


Figure 1. Usage Impact to Behavior Assessment

Figure 1 showed that 90% of parents perceived the impact of mobile technology on child behavior as positive, with 57% indicating happiness and 33% reporting comfort, suggesting a strong favorable response toward AI-enabled mobile usage. This indicates that mobile applications may contribute to emotional engagement, learning interaction, and overall behavioral satisfaction among children with special needs. However, a smaller portion of responses (10%) reflected concerns such as emotional disconnection (30%), fear (30%), irritation (20%), and social withdrawal (20%), although these were not conclusively attributed to technology use. These findings suggest that while AI mobile-based technologies generally support positive behavioral outcomes, careful monitoring is necessary to mitigate potential

negative effects, consistent with studies emphasizing balanced and guided technology use (Muppalla et al., 2023; Dincer & Topcu, 2022; Willumsen & Bull, 2020).

f. Domains of Learning

Table 7. Domains of Learning

Cognitive (Knowledge) (27%)	Psychomotor (Skills) (48%)	Affective (Attitude) (23%)
Construct new vocabulary (8%)	Game Strategy (19%)	Peer Engagement (7%)
Memorizing songs and alphabet (7%)	Acquire Talent (29%)	Create own blocks (6%)
Recognize colors (5%)		Allow sharing (5%)
Express one's feelings (4%)		Engage in play (4%)
Differentiate different characters (3%)		

Table 7 indicated that mobile technology contributed most significantly to the psychomotor domain (48%), followed by cognitive development (27%) and affective development (23%), suggesting that children with special needs benefited more in skill-based activities. This implies that AI-enabled mobile applications were particularly effective in enhancing hands-on abilities such as game strategy (19%) and talent acquisition (29%), which support active learning and engagement. Cognitive benefits, including vocabulary development, memorization, and recognition skills, further demonstrate the role of mobile technology in supporting foundational learning processes. Additionally, affective outcomes such as peer engagement and emotional expression highlight the potential of these technologies to support social and emotional development, consistent with studies emphasizing the role of AI-driven tools in enhancing multiple learning domains (Sun et al., 2020; Zawacki-Richter, Marín, Bond, & Gouverneur, 2022; Holmes, Bialik, & Fadel, 2019).

g. Mobile Technology Role to Parents care and Usage Impact

Table 8. Mobile Technology Role to Parents care and Usage Impact

		Sum of Squares	df	Mean Square	F	Sig.
Parent Care Usage Impact	Between Groups	32.399	7	4.628	3.927	.001
	Within Groups	108.441	92	1.179		
	Total	140.840	99			

The data indicated that mobile technology played a significant role in parental caregiving, showing a positive relationship between usage and the developmental growth of children with special needs (Table 8). This suggests that AI-enabled mobile applications served as effective assistive tools, supporting both parents and children through interactive features, real-time responses, and play-based learning strategies. The integration of such technologies enhanced parents' ability to facilitate learning and manage behavioral development, reinforcing their role as active mediators in technology use. These findings align with studies highlighting that AI-driven mobile tools promote adaptive learning, engagement, and developmental support when used appropriately (Holmes, Bialik, & Fadel, 2019; Zawacki-Richter, Marín, Bond, & Gouverneur, 2022; Swider-Cios, et al 2023).

h. Developmental Growth, Performance and Personality

Table 9. Developmental Growth, Performance and Personality

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	26.081	4	6.520	5.582	0.000
Within Groups	110.959	95	1.168		
Total	137.040	99			

The data revealed a statistically significant relationship between developmental growth and the performance and personality of children with special needs, as indicated by the ANOVA results ($F = 5.582$, $p = .000$) (Table 9). This implies that variations in performance and personality were significantly associated with differences in developmental

outcomes, suggesting that mobile technology usage contributed positively to children's growth. The findings showed improvements in creativity, sensory processing, peer interaction, verbal communication, and memory, indicating that AI-enabled mobile applications supported both cognitive and social development. These results are consistent with existing studies emphasizing that interactive and adaptive technologies enhance developmental domains when integrated effectively into children's learning environments (Sun et al., 2020; Holmes, Bialik, & Fadel, 2019; Zawacki-Richter, Marin, Bond, & Gouverneur, 2022).

6. Conclusion

Based on the findings of the study, AI-enabled mobile technology has a significant positive impact on the developmental growth of children with special needs. The results revealed that most parents, particularly those aged 31–50 and predominantly mothers, actively facilitated the use of mobile devices in caregiving, indicating strong parental involvement in technology-mediated learning. The widespread use of Android devices further highlights the role of accessibility and affordability in enabling the integration of AI-driven tools in everyday settings. Moreover, the data showed that while moderate gadget use supports engagement and learning, extended usage among some children raises concerns that require careful regulation.

The study also demonstrated that mobile technology contributes positively across multiple domains of learning, particularly in the psychomotor domain, followed by cognitive and affective development. Children were able to enhance skills such as game strategy, creativity, communication, and social interaction. Behavioral assessments further indicated that the majority of parents observed positive effects, including happiness and comfort, although a small proportion reported concerns such as emotional disconnection and irritability. Importantly, statistical analysis using ANOVA confirmed a significant relationship between mobile technology use and developmental growth in terms of performance and personality, suggesting that AI-enabled applications play a meaningful role in supporting children's holistic development.

Overall, the findings suggest that AI mobile-based technologies serve as effective assistive tools for both parents and children, enhancing learning experiences, communication, and behavioral outcomes. However, the results also emphasize the importance of balanced, guided, and purposeful use of technology to maximize benefits while minimizing potential risks.

Based on the findings of the study, it is recommended that parents take an active role in supervising and guiding their children's use of mobile technology. Rather than allowing independent and prolonged usage, parents should establish appropriate screen time limits and carefully select AI-enabled applications that are suitable for their child's developmental needs. Engaging in co-usage practices can further enhance learning, strengthen parent-child interaction, and minimize potential negative effects such as dependency and reduced social engagement.

Educators and Special Education (SPED) practitioners are encouraged to integrate AI-enabled mobile technologies into their teaching strategies to support individualized instruction. These tools can be particularly effective in enhancing psychomotor and cognitive skills through interactive and adaptive learning experiences. Additionally, continuous professional development and training should be provided to ensure that educators are equipped with the necessary knowledge and skills to effectively utilize these technologies in the classroom.

Schools and educational institutions should also take an active role in promoting the responsible use of mobile technology. This includes developing clear policies and guidelines that support the integration of AI tools in special education while ensuring that their use remains balanced and developmentally appropriate. Institutions should also provide support systems for both teachers and parents, such as workshops or orientation programs, to improve digital literacy and awareness of effective technology use.

Furthermore, future researchers are encouraged to expand upon this study by exploring additional variables such as the long-term effects of AI-enabled mobile technology, differences across various types of disabilities, and the influence of socioeconomic factors on technology access and usage. Conducting studies with larger and more diverse populations may also provide deeper insights and improve the generalizability of findings.

Lastly, policymakers should strengthen initiatives that promote equitable access to AI-based educational tools for children with special needs. Efforts should be made to bridge the digital divide by ensuring affordability, accessibility,

and proper infrastructure. At the same time, policies should address important concerns such as screen time regulation, data privacy, and the ethical use of artificial intelligence in educational and home environments.

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Biographies

Febwin E Villaceran is a distinguished academic leader, researcher, and educator with over two decades of experience in higher education, research, and institutional management. He currently serves as University Dean of the College of Business Administration and Accountancy at Philippine Christian University, where he oversees academic programs, faculty development, and strategic implementation of educational policies. He holds multiple advanced degrees, including a Doctor of Philosophy in Strategic Management, a Doctor of Technology, and a postdoctoral degree in Strategic Management and Leadership, reflecting his interdisciplinary expertise in business, engineering, and education. His professional background also includes leadership roles such as Research Director and School Administrator across various institutions, demonstrating his strong commitment to academic excellence and organizational development.

Dr. Villaceran is actively engaged in international research and professional organizations, serving as a research consultant, accreditor, and global ambassador in education and management. He has presented numerous research papers in international conferences internationally, with focus areas in engineering, urban planning, artificial intelligence, business and leadership. In addition to his academic contributions, he holds several certifications in engineering, business and data analytics, further strengthening his multidisciplinary profile. Recognized for his leadership and research excellence, he has received prestigious awards such as the Distinctive Leadership in Education Asia Award and the Dangal ng Lahi Award. His career reflects a strong dedication to advancing research, innovation, and inclusive education both locally and globally.