

## PAPER

# Predicting Preservice Teachers' Intentions to Integrate AI-Based Mobile Applications in Special Education: Examining the Role of Technology Self-Efficacy and Attitudes

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## ABSTRACT

Grounded in the Theory of Reasoned Action, this study aims to examine how technology self-efficacy and attitudes toward AI-based mobile applications predict preservice special education teachers' (SETs) intentions to integrate these applications into teaching students with learning disabilities (SWLD). A stepwise multiple regression analysis assessed the impact of these variables on preservice teachers' intentions. Data were collected from 173 preservice SETs. The results revealed that preservice teachers exhibited moderate levels of technology self-efficacy, intentions to integrate AI-based mobile applications, and attitudes toward these applications. Furthermore, attitudes toward AI-based mobile applications emerged as the strongest predictor of teachers' intentions to integrate these technologies ( $r = 0.878$ ,  $p < 0.05$ ), while technology self-efficacy also had a significant effect ( $r = 0.698$ ,  $p < 0.05$ ). Together, these variables accounted for 76% of the variance in intentions ( $R^2 = 0.77$ ). These findings underscore the important role of technology self-efficacy and positive attitudes in affecting teachers' adoption of AI-based mobile applications. This study addresses the gap in the literature on integrating AI technologies in special education and emphasizes their potential to enhance teaching practices for SWLD. Based on the findings, the study recommends training and support to improve preservice teachers' self-efficacy and attitudes toward AI-based mobile applications, facilitating their integration into special education settings.

## KEYWORDS

mobile application, technology self-efficacy, attitudes, intentions to use, preservice teachers, students with learning disabilities, AI

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## 1 INTRODUCTION

Today, the world is witnessing rapid development in communications and information technology, affecting all aspects of life. This technological revolution has changed methods of information transmission across various fields, including education [1–2]. Hence, new teaching and learning methods, such as e-learning and virtual reality, have emerged, benefiting all students, including those with learning disabilities. Mobile technology is characterized by its small size, portability, and accessibility, enabling learners to access educational materials anytime and anywhere, thus bridging the gap for those requiring tailored support. Mobile applications enhance the educational process by offering content personalization, interactive experiences, and data-driven insights [3–4]. Previous studies have demonstrated the effectiveness of these applications in improving student performance, knowledge, motivation, academic well-being, communication between students and teachers, and providing immediate assistance. This flexibility establishes mobile applications as critical resources for achieving effective learning outcomes [5–8]. Mobile applications are particularly beneficial in addressing the needs of SWLD [9], who face challenges in areas such as reading (dyslexia), writing (dysgraphia), and math (dyscalculia), which affect their academic success without tailored support and interventions. AI-based mobile apps can foster a supportive educational environment that enhances motivation, academic achievement, and independence among SWLD [10–11]. For example, ModMath supports students with dyscalculia in solving mathematical problems, while AI applications that convert written text into voice assist students with dysgraphia [12–13].

Nonetheless, while research highlights the potential of mobile applications, studies have also identified barriers to their adoption in teaching SWLD. For instance, a study by [14] found growing acceptance of mobile technology among teachers but reported challenges such as insufficient training and limited resources. Teachers acknowledged that mobile applications help track students' progress, promote interactions, and promote student independence; however, they expressed concerns about technical barriers and privacy issues [15–17]. Similarly, studies [18–19] underscored the need for adequate training and technical support to ensure effective adoption. Additionally, research suggests that teachers' technology self-efficacy and attitudes play an important role in successful integration [20–23]. Despite promising evidence supporting mobile applications, a research gap persists in understanding the factors affecting teachers' intentions to adopt AI-based mobile applications in special education.

Technology self-efficacy and attitudes toward technology are important factors affecting behavior and the intention to adopt or use technology [24–27]. Understanding teachers' attitudes is essential for encouraging the effective use of mobile apps, particularly in providing personalized education tailored to students' needs. Preservice teachers' intentions to integrate mobile apps into classrooms are affected by various factors, including prior experience, institutional support, and training [28]. By understanding these factors, it becomes possible to foster positive attitudes toward technology integration in education, potentially leading to improved outcomes for SWLD.

In Jordan, the Ministry of Education has prioritized the integration of technology into education by developing educational policies and providing necessary training for teachers. However, despite these efforts, there is still a need for recent research focused on integrating mobile applications in teaching SWLD. This study aims to examine the relationships between preservice teachers' technology self-efficacy,

attitudes, and intentions to integrate AI-based mobile applications into teaching SWLD, addressing a critical gap in the existing literature.

## 2 THEORETICAL FOUNDATIONS AND RESEARCH MODEL

### 2.1 AI-Based mobile applications for learning students with disabilities

Learning disabilities (LD) are among the many challenges students face in schools. In Jordan, SWLDs encounter academic challenges that impede their abilities in reading, writing, arithmetic, and problem-solving [29–31]. These academic skills are fundamental to students' success [32], emphasizing the need for targeted interventions to address the challenges faced by SWLD.

AI-based applications can enhance inclusive education by offering accessible, engaging, flexible, and self-directed learning environments. These tools empower SWLD to build self-confidence and foster meaningful learning experiences [33–35]. For example, in mathematics, apps such as Mathway and Photomath simplify complex problems with step-by-step visual explanations, while Grammarly provides real-time grammar and spelling corrections to assist students with dysgraphia. Similarly, Learning Ally's text-to-speech functionality helps students with dyslexia better comprehend written content.

Although the benefits of these applications are well-documented, challenges remain, including limited accessibility in under-resourced settings, insufficient teacher training, and concerns about data privacy. Moreover, the long-term impacts of AI tools on academic outcomes and self-reliance among SWLD require further exploration. Addressing these gaps is essential for the effective integration of AI-based mobile applications into inclusive education practices.

### 2.2 Technology self-efficacy

Self-efficacy is an essential factor affecting individuals' attitudes and willingness to engage with technological tools across various contexts [39]. It refers to an individual's belief in their ability to successfully organize and execute tasks in a specific context and plays a key role in self-regulation processes. In the context of technology, [40] defines technology self-efficacy as "confidence in one's competence with technology." Similarly, [24] describes it as the extent to which teachers feel confident in their ability to use technology effectively in teaching. Furthermore, a study by [41] relates this concept to preservice SETs' beliefs in their ability to successfully use and integrate AI-based mobile applications for students with LD. The study shows that individuals with higher technology self-efficacy are less likely to be concerned about using technology, enabling them to effectively perform tasks using technological tools.

Educational literature [42] emphasizes the critical importance of integrating technology into teacher preparation programs to equip future educators with the required skills for effective technology integration in their educational practices. While this offers a strong theoretical foundation, it does not address the practical challenges faced during implementation. Furthermore, [43] found that technology integration self-efficacy directly affects changes in teachers' ICT use for instructional purposes. However, this study primarily focused on in-service teachers, leaving a gap in understanding how self-efficacy develops during teacher training.

[44] conducted a study in Saudi Arabia and Pakistan with 619 teachers and found that mobile self-efficacy positively affects behavioral intention toward using

mobile-based learning. While this study provides valuable insights, its findings cannot be generalized to SETs. Similarly, [45] conducted a descriptive study among 380 Chinese students, revealing that students' technological self-efficacy significantly predicts their technology acceptance. However, these findings may not fully apply to educators, whose roles and responsibilities differ significantly from students. In Indonesia, [46] conducted a descriptive study with 420 teachers and found that teachers' technological self-efficacy positively impacts their attitudes toward using virtual learning environments. Although the findings are robust, they focus primarily on virtual learning environments rather than AI-based mobile applications, leaving a gap in understanding the unique challenges and opportunities associated with newer technologies. In the United Arab Emirates (UAE), [47] conducted a study among 24 SETs and found that self-efficacy significantly impacts the actual use of technology. However, the small sample size limits the generalizability of these findings to diverse educational contexts.

### 2.3 Attitudes toward AI-based mobile applications

Attitude is a critical factor affecting individuals' behavior and performance across various contexts, including education, drawing the attention of educational researchers and psychologists worldwide [48]. Attitude encompasses knowledge and positive or negative feelings toward an object or activity [49]. [50] defines it as "an individual's psychological processes that determine the individual's reactions in society." According to the ABC model of attitude, it comprises three main elements: affective, behavioral, and cognitive, which relate to an individual's beliefs, feelings, and actions [51]. Additionally, the Theory of Reasoned Action (TRA) suggests that the intention to use technology is affected by attitude [52]. In the context of special education, attitudes shape how teachers respond to instructional strategies, including the integration of AI-based mobile applications for students with learning difficulties, ultimately enhancing the quality of education for these students. Literature on SET attitudes toward technology is limited. Some researchers have examined teacher attitudes toward tablet devices; for instance, [53] conducted semi-structured interviews with 15 teachers in Palestine. The results showed varied attitudes toward tablets, with 60% indicating that their digital skills and experience positively affected their attitudes toward using these apps in the classroom. However, challenges in using tablets negatively impacted their adoption and acceptance of these tools in instructional practices. The small sample size and focus on a single type of technology limit the generalizability of these findings to other contexts or tools, such as AI-based applications. Additionally, a study by [54] concluded that SETs' perceptions significantly affect the adoption of tablet devices in special education classrooms. While this study underscores the importance of teacher perceptions in effective technology integration, it does not address the role of attitudes or self-efficacy in ensuring successful implementation.

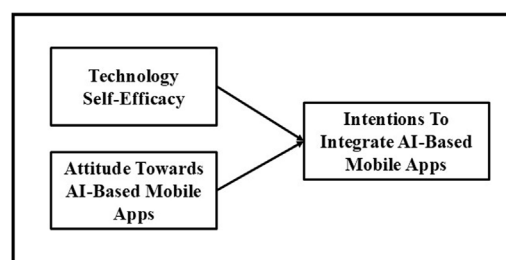
### 2.4 Intentions to integrate AI-based mobile applications in the context of SETs

The adoption of mobile technologies in higher education has become increasingly widespread globally [55], specifically in the SETs field, where there is a growing trend to incorporate these technologies across various communities worldwide [54].

Recent studies have emphasized the role of AI technologies in education [56–59]. For example, a systematic review by [60] found that AI applications in primary schools enhance teaching by improving learning materials and supporting teachers, leading to better student knowledge and skills. Similarly, [61] demonstrated that ChatGPT-supported education enhances primary school learning experiences and promotes sustainable practices and innovative teaching approaches. These technologies have the potential to transform learning for students with disabilities by reducing challenges and providing rehabilitation solutions [62–63]. According to the Technology Acceptance Model (TAM), individuals’ actual use of technologies is impacted by their intention to adopt them [52]. Furthermore, [64] emphasized that behavioral intention plays a crucial role in determining the actual usage of AI applications. Although their study focused on factors affecting students’ intentions to use AI applications for academic purposes, it underscores the importance of intention in driving the adoption of AI technology. Therefore, SETs must intend to use AI-based mobile applications in their practice for students with disabilities. Behavioral intention is defined by [65] as “a person’s perceived likelihood or subjective probability that he or she will engage in a given behavior” and as “a readiness to engage in a particular behavior” [66], [2]. However, these behavioral intentions are affected by an individual’s attitude [49].

According to TRA, intention determines behavior [52], where behavior is defined as any action taken by an individual in response to internal or external stimuli [67]. This implies that preservice SETs’ intention to integrate AI-based mobile applications determines their behavior in using these technologies with their students. [68] suggests that users’ attitudes toward technology influence their behavioral intentions. While this is supported across various contexts, such as e-commerce, its applicability to educational settings requires further exploration. For example, [69] found that customers’ positive attitudes toward mobile apps led to more frequent purchases, showing the impact of attitudes but focusing solely on consumer behavior rather than educational use. Furthermore, [70] identified a significant positive relationship between preservice teachers’ attitudes toward computer-assisted education and their intention to adopt technology. Although insightful, this study does not address special education teachers or mobile applications, limiting its relevance to AI-based technologies and special education. Similarly, [71] found that consumer attitudes toward free trials of technology-driven services significantly impact their intention to try them. While this underscores the role of attitudes in technology acceptance, it does not address the unique challenges educators face when integrating technology into classrooms.

The reviewed studies offer valuable insights into the relationship between self-efficacy, attitudes, and technology adoption. However, they often overlook special education contexts and the integration of AI-based mobile applications. This study addresses this critical gap by focusing on preservice SETs and examining the factors influencing their intentions to adopt AI technologies for teaching SWLD. Drawing from the literature, the research proposes its theoretical framework, as illustrated in Figure 1.



**Fig. 1.** The theoretical framework guiding the study

This framework examines the relationships between technology self-efficacy, attitudes toward AI-based mobile applications, and preservice special education teachers' intentions to integrate these applications into teaching SWLD. The study is guided by the following research questions (RQ):

RQ1: What are the levels of technology self-efficacy, attitudes toward AI-based mobile applications, and intentions to integrate AI-based mobile applications in teaching SWLD among preservice SETs?

RQ2: Is there a statistically significant correlation between technology self-efficacy, attitudes toward AI-based mobile applications, and intentions to integrate AI-based mobile applications in teaching SWLD?

RQ3: To what extent do technology self-efficacy and attitudes toward AI-based mobile applications predict intentions to integrate AI-based mobile applications in teaching SWLD?

### 3 RESEARCH METHODOLOGY

This study employs a quantitative research design, specifically a predictive correlational approach, using a random sampling technique to examine the relationships between the study variables: technology self-efficacy, attitudes toward mobile applications, and preservice SETs' intentions to integrate mobile applications in teaching SWLD. The predictive correlational design facilitates the objective analysis of measurable relationships and predictive patterns [72], aligning with the study's focus on addressing the research questions. This design allows for the use of statistical methods, such as regression analysis, to determine the strength and direction of these relationships. This approach ensures generalizability, statistical validity, alignment with the study's objectives, and the identification of meaningful patterns.

This study was conducted in the School of Educational Sciences at the University of Jordan (UOJ), recognized as the top university in Jordan and ranked 368th globally in the QS World University Rankings for 2025 [73]. A random sampling method was employed to select participants from the population of students majoring in special education.

#### 3.1 Data collection, participants, and procedures

The study population consisted of 265 preservice SETs (244 females and 21 males) at the School of Educational Sciences, specifically second-, third-, and fourth-year students enrolled in the bachelor's program in special education during the first semester of the 2024–2025 academic year. First-year students were excluded from the sample as they had not yet completed certain core special education courses necessary to develop the foundational knowledge required for the study. In contrast, second-, third-, and fourth-year students were included as they were more likely to have completed these courses, making their responses more relevant to the study's objectives.

Data were collected using an online questionnaire during the second month of the first semester of the 2024–2025 academic year, with the data collection process spanning three weeks. The link for the questionnaire was shared with all students enrolled in the special education program through official university communication channels and social media platforms commonly used by students, including Facebook and WhatsApp. Responses were included in the analysis only if the

questionnaire was fully completed, ensuring all eligible students had an equal opportunity to participate. The final sample consisted of 173 participants who voluntarily responded. Prior to the study, ethical approval and consent forms were obtained from the RIP (No. 291/2024) at the University of Jordan and the study participants. The participants were informed about the study's objectives, their right to withdraw at any time, and assurances of anonymity and confidentiality. The online questionnaire, created on Google Forms, was secured with a strong password and two-factor authentication, with responses automatically stored on a Google Drive account accessible only to the research team. The data were later downloaded and securely stored on a password-protected laptop for processing and analysis. Table 1 presents the demographic data of the undergraduate participants.

**Table 1.** The participants' demographic data (N = 173)

No.	Variable	Value	F	P
2	Gender	Male	14	8.1
		Female	159	91.9
3	Academic Level	Second	79	45.7
		Third	69	39.9
		Fourth	25	14.5
4	GPA	Excellent	36	20.8
		Very good	71	41.0
		Good	60	34.7
		Poor or less	6	3.5
5	Level of Digital Skills	Advanced	65	37.6
		Intermediate	83	48.0
		Basic	25	14.5

Notes: F: frequency, P: percentage.

### 3.2 Data collection tools

For this study, a web-based self-report questionnaire was developed by the researcher as the data collection tool. The questionnaire was designed to collect quantitative data from preservice SETs regarding their attitudes, technology self-efficacy, and intentions to use AI-based mobile applications in special education for students with learning disabilities. The web-based format ensured efficient data collection from a diverse participant group, improving accessibility and supporting a representative study sample. The questionnaire consisted of four parts: the first part collected demographic data, including gender, academic year, GPA, and digital skills; the second part comprised three developed scales by the researchers, which are:

**Attitudes towards AI-based mobile applications scale (ATAIM).** The ATM scale was developed based on the ABC model of attitude and related existing scales [8, 74–76] to measure the level of attitude toward mobile applications among preservice SETs. It consists of three subscales: affective, behavioral, and cognitive, comprising a total of 11 items. The scale uses a 5-point Likert scale, ranging from “Strongly Disagree” to “Strongly Agree.” Participants' scores range from 11 to 55,

with higher scores indicating a more favorable attitude toward utilizing AI-based mobile applications.

**Technology Self-Efficacy Scale (TSE).** The TSE scale was developed based on self-efficacy literature and previous related measures [77–80] and consists of seven items designed to assess the level of technology self-efficacy among preservice SETs. The scale employs a 5-point Likert scale, ranging from “Strongly Disagree” to “Strongly Agree.” Participants’ scores range from 7 to 35, with higher scores indicating greater technology self-efficacy among respondents.

**Intentions to integrate AI-based mobile applications scale (ITAIM).** The ITAIM scale was developed based on related theoretical literature and scales [81–83]. It comprises four items designed to measure preservice SETs’ intentions to integrate AI-based mobile applications into their teaching for students with learning disabilities. The scale uses a 5-point Likert scale, ranging from “Strongly Disagree” to “Strongly Agree.” Participants’ scores range from 4 to 20, with higher scores indicating stronger intentions to integrate AI-based mobile applications into their teaching practices for SWLD.

The researchers ensured the reliability and validity of the study’s instrument using various techniques. Content validity was established by sending the questionnaire to a panel of 10 experts in the fields of special education, counseling, and mental health, measurement and assessment, clinical psychology, and educational technology. Additionally, the researcher administered the questionnaire to a pilot sample of 35 preservice SETs (31 females, 4 males) from the study population, excluding the main study sample. The pilot responses were analyzed to assess the reliability of each scale, and Cronbach’s alpha was calculated to ensure internal consistency. The results are presented in Table 2. Furthermore, data from the pilot sample were used to analyze the “item-total correlation” (ITC) for each scale, with the correlation between individual item scores and the total scale score falling within an appropriate range, as shown in Table 2. These findings reveal that the measures are both valid and reliable.

**Table 2.** Cronbach’s alpha and ITC for study scales

Scale	Cronbach’s Alpha	ITC (Min–Max)
TSE	0.91	(0.654–0.842)
ATAIM	0.95	(0.306–0.927)
ITAIM	0.93	(0.881–0.931)

### 3.3 Data analysis

The statistical analysis for this study employed both descriptive and inferential statistical techniques to interpret data collected from preservice SETs. To answer the first research question, descriptive statistics, including mean, standard deviation, and frequencies, were calculated to assess the levels of technology self-efficacy, attitudes toward AI-based mobile applications, and intentions to integrate these applications into teaching SWLD. Pearson’s correlation (Pr) analysis was then conducted to determine the relationships between the study variables (technology self-efficacy, attitudes toward AI-based mobile applications, and intentions to integrate them), providing insights into how technology self-efficacy and attitudes influence behavioral intentions. Finally, multiple regression analysis was utilized to examine the extent to which technology self-efficacy and attitudes toward AI-based mobile

applications predict intentions to integrate these applications and to assess how much variance in intentions can be explained by the independent variables. The researcher ensured that all necessary preliminary analyses for conducting multiple regression were completed.

## 4 FINDINGS AND DISCUSSIONS

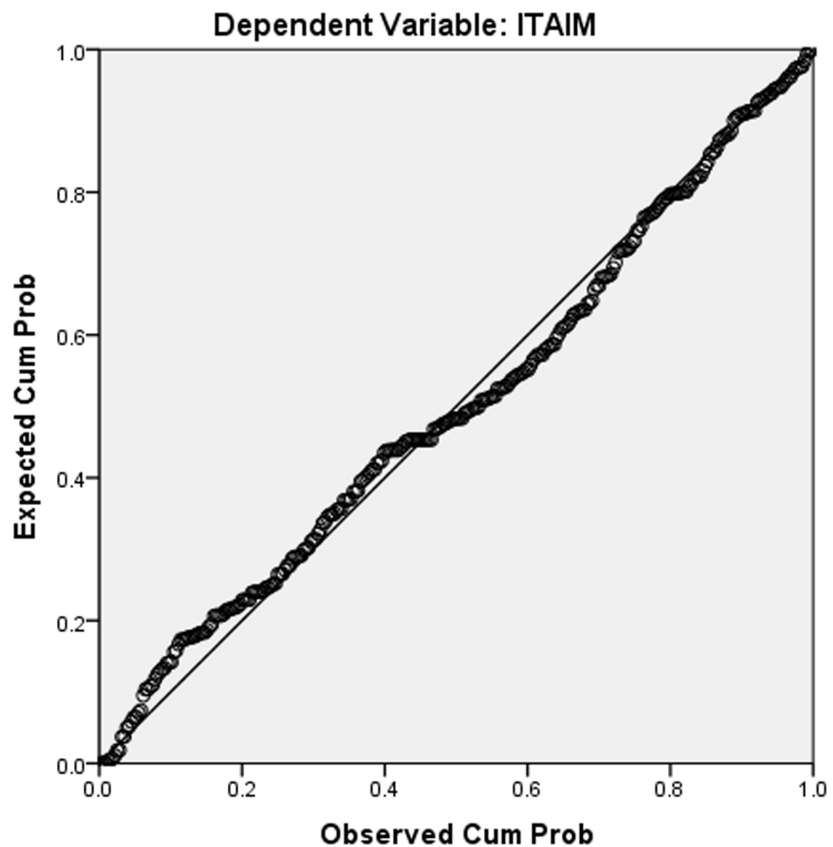
### 4.1 Assumption testing for regression analysis

A preliminary analysis was conducted to verify the assumptions and ensure the data's suitability for regression analysis. Table 3 showed that the variance inflation factor (VIF) for both attitudes (2.190) and self-efficacy (2.190) fell within the acceptable range, below the threshold of 10. Additionally, the tolerance value for both variables was 0.457, exceeding the acceptable threshold of 0.1. These findings confirm the absence of multicollinearity, ensuring the reliability of the regression analysis.

**Table 3.** Multicollinearity statistics (VIF and tolerance) for predictor variables

Variable	VIF	Tolerance
TSE	2.190	0.457
ATM	2.190	0.457

Figure 2 illustrates that the points align closely with the diagonal line, which indicates that the residuals follow a normal distribution.



**Fig. 2.** Normal Q-Q Plot

The scatterplot in Figure 3 illustrates that the residuals are randomly scattered around zero, indicating that the assumptions of linearity and constant variance (homoscedasticity) are satisfied. These preliminary checks confirm the suitability of the data for subsequent analyses.

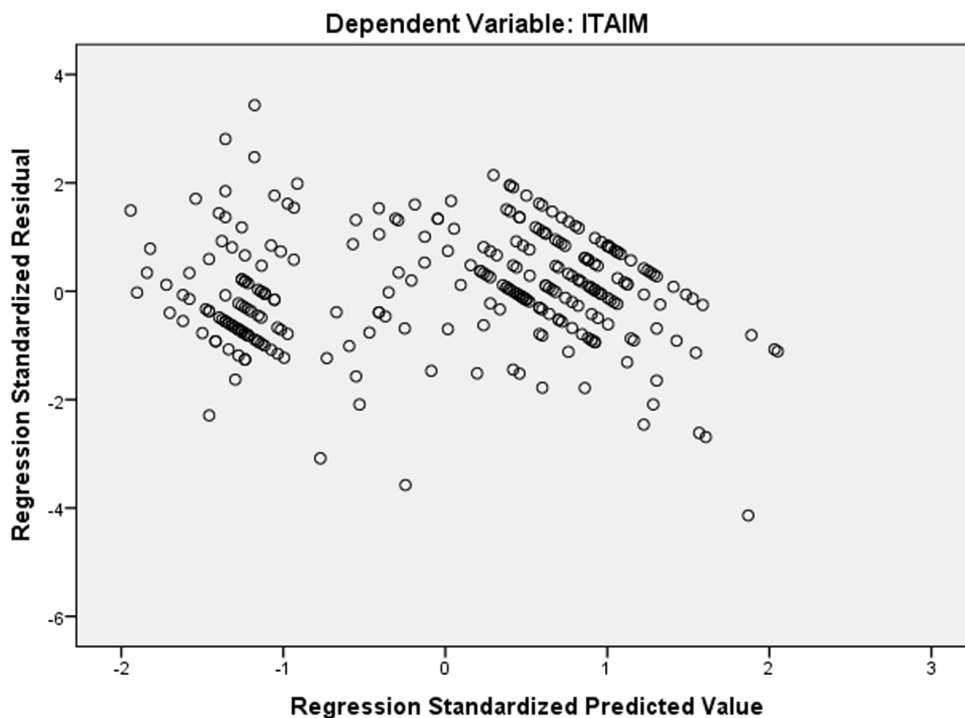


Fig. 3. Scatterplot of standardized residuals vs. predicted values

To answer the first research question—What are the levels of technology self-efficacy, attitudes toward AI-based mobile applications, and intentions to integrate AI-based mobile applications in teaching SWLD among preservice SETs? the researchers computed descriptive statistics, including means, standard deviations, and frequencies, for technology self-efficacy, attitudes toward AI-based mobile applications, and preservice teachers' intentions to integrate these applications in teaching SWLD.

#### 4.2 The technology self-efficacy level among preservice SETs

Table 4 presents the statistical data for preservice SETs' technology self-efficacy. The highest-rated item was item 3: "I can effectively use technology by relying solely on user manuals for guidance," while the lowest-rated item was item 6: "I believe in my ability to come up with creative methods to accomplish my tasks using technology."

These findings suggest that preservice SETs are confident in their ability to follow structured, pre-existing guidelines or instructions when using technology, such as relying on user manuals or instructional videos. However, they feel less confident in their ability to use technology innovatively or in self-directed, creative ways. This may stem from limited exposure to technology integration in their training programs, which often prioritize procedural use over innovative applications. The mean score for overall technology self-efficacy was 2.96, indicating a moderate

level of technology self-efficacy. This moderate level highlights substantial room for improvement, particularly in fostering creative problem-solving skills with technology. [47] emphasized the critical role of technology self-efficacy in the actual use of technology among SETs. This underscores the need for SETs' instructors to provide more support and opportunities, such as guided practice or specialized training, to help preservice SETs enhance their technology skills.

**Table 4.** Descriptive statistics for the technology self-efficacy scale

Item	Sentence	Mean	SD	Level
1	I feel confident in my ability to complete any task using technology, even if no one is around to guide me.	2.83	1.13	Moderate
2	I believe in my capability to use new technology, even if I have never encountered it before.	2.73	1.05	Moderate
3	I can effectively use technology by relying solely on user manuals for guidance.	3.03	1.13	Moderate
4	I believe that I can regularly use technology in my activities.	2.99	1.11	Moderate
5	I believe that with sufficient time to explore, I can learn to use any technology effectively.	3.42	1.22	Moderate
6	I believe in my ability to come up with creative methods to accomplish my tasks using technology.	2.66	1.11	Moderate
7	Even when faced with difficulties, I can still effectively utilize technology.	3.07	1.18	Moderate
Total		2.96	0.90	Moderate

### 4.3 The attitudes toward AI-based mobile applications level among preservice SETs

Table 5 provides insights into preservice SETs' attitudes toward AI-based mobile applications. Item 10 ("I think it is essential for preservice teachers to be trained on using AI-based mobile applications for inclusive education") received the highest mean score of 3.66. This suggests that preservice teachers strongly believe in the importance of training on AI-based mobile applications to enhance inclusive education. This relatively high score reflects a positive attitude toward the value of AI technology in special education and emphasizes the importance they place on adequate training to effectively implement these tools.

In contrast, item 1 ("I hesitate to integrate the AI-based mobile application designed to support SWLD due to concerns regarding its effectiveness") had the lowest mean score of 2.75. This indicates that preservice teachers are generally not hesitant about using AI-based mobile applications to support SWLD, although some concerns regarding the effectiveness of these technologies persist. While these concerns are not widespread, they highlight the need to address them. Previous studies have emphasized the significant impact of teacher attitudes toward technology, such as tablets, on technology adaptation [53].

The overall mean score of 3.37 on the scale indicates that preservice teachers hold a moderate attitude toward AI-based mobile applications. This reflects a general

openness to AI technologies in special education but also highlights the need to build greater confidence and foster more positive perceptions. Previous research has shown that positive perceptions among SETs significantly affect the adaptation of technologies such as tablets [54]. These findings suggest that decision-makers should implement targeted training programs and provide increased exposure to AI-based mobile applications. By addressing preservice SETs' concerns and enhancing their familiarity with these tools, it is possible to strengthen their positive attitudes and promote the effective integration of AI technologies to support SWLD.

**Table 5.** Descriptive statistics for the attitudes towards AI-based mobile applications scale

Item	Sentence	Mean	SD	Level
1	I hesitate to integrate the AI-based mobile application designed to support SWLD due to concerns regarding its effectiveness. (B)	2.75	1.11	Moderate
2	I am willing to integrate the AI-based mobile application into individual lesson plans for SWLD. (B)	3.35	1.23	Moderate
3	I will actively seek training on how to use the AI-based mobile application effectively. (B)	3.48	1.19	Moderate
4	I feel comfortable using the AI-based mobile application for SWLD. (B)	3.33	1.18	Moderate
5	I feel excited about the potential of the mobile application designed to support SWLD. (A)	3.32	1.18	Moderate
6	I will feel anxious about my SWLD using the AI-based mobile application in their learning. (A)	2.88	1.16	Moderate
7	I will feel satisfied when I recognize my SWLD are benefiting from the AI-based mobile application. (A)	3.42	1.17	Moderate
8	I understand the features of the AI-based mobile application designed to support SWLD and how these features can benefit them. (C)	3.15	1.17	Moderate
9	I believe that the AI-based mobile application will improve learning outcomes for SWLD. (C)	3.46	1.22	Moderate
10	I think it is essential for preservice teachers to be trained in using AI-based mobile applications for inclusive education. (C)	3.66	1.34	Moderate
11	I believe that integrating technology, such as AI-based mobile applications, is important for effectively teaching SWLD. (C)	3.56	1.34	Moderate
Total		3.37	0.81	Moderate

#### 4.4 The intentions to integrate AI-based mobile applications in teaching SWLD among preservice SETs

Table 6 presents the descriptive data for preservice SETs' intentions to integrate AI-based mobile applications into teaching SWLD. The highest mean score was reported for item 1: "If the AI-based mobile application is available for my SWLD, I will use it in my instruction practices," with a high-level mean of 3.85, showing a strong willingness to use AI-based mobile applications. In contrast, the lowest mean score was for item 3: "I anticipate regularly incorporating the AI-based mobile application into my upcoming educational practices for SWLD," which had a lower mean of 3.35. This suggests some hesitation or doubt about the regular use of AI-based applications, possibly due

to concerns about practicality, ease of use, obstacles, or effectiveness in regular teaching settings, which could impact their intention, as intention determines behavior [52]. The overall mean score for the scale was 3.6, reflecting a moderate level of intention to integrate AI-based mobile applications, with a tendency toward positive intentions but some reservations about consistent use. These findings suggest that preservice SETs may require additional support, training, and reassurance about the effectiveness of AI tools. Addressing these concerns could enhance their confidence and promote the consistent integration of AI-based applications, ultimately benefiting SWLD.

**Table 6.** Descriptive statistics for the intentions to integrate AI-based mobile applications

Item	Sentence	Mean	SD	Level
1	If the AI-based mobile application is available for my SWLD, I will use it in my instruction practices.	3.85	1.24	High
2	Whenever possible, I will incorporate the AI-based mobile application as needed for learning activities for SWLD.	3.61	1.20	Moderate
3	I anticipate to regularly incorporating the AI-based mobile application into my upcoming educational practices for SWLD.	3.38	1.22	Moderate
4	I plan to frequently utilize the AI-based mobile application to support learning needs for SWLD.	3.56	1.19	Moderate
Total		3.60	1.10	Moderate

The second question—Is there a statistically significant correlation between technology self-efficacy, attitudes toward mobile applications, and the intentions to integrate mobile applications in teaching SWLD?—was addressed through a correlation analysis among the independent variables: technology self-efficacy, attitudes toward AI-based mobile applications, and preservice teachers' intentions to integrate AI-based mobile applications in teaching SWLD. The results of this analysis are presented in Table 7.

**Table 7.** Correlation analysis

Variable	TSE	ATM	ITUM
TSE	1	0.737	0.698
ATM	0.737	1	0.878
ITUM	0.698	0.878	1

This analysis showed that both independent variables—technology self-efficacy and attitudes toward AI-based mobile applications—were positively associated with preservice SETs' intentions to integrate these applications into teaching SWLD. The Pearson correlation between technology self-efficacy and the intention to use AI-based mobile applications was statistically significant, with  $r = 0.698$ ,  $p < 0.05$  (1-tailed). This strong correlation suggests that as preservice teachers' confidence in their technological abilities increases, so does their intention to integrate AI-based applications, aligning with previous studies [41, 43–44]. Additionally, the Pearson correlation between attitudes toward AI-based mobile applications and the intention to integrate them into teaching SWLD was also statistically significant, with  $r = 0.878$ ,  $p < 0.05$  (1-tailed). This very strong correlation indicates that positive attitudes toward these applications significantly affect teachers' intentions to adopt them. These findings are consistent with

previous research [70], which showed a positive relationship between pre-service teachers' attitudes toward computer-assisted education and their intention to accept technology. Notably, the results suggest that attitudes may play an even more important role than self-efficacy in affecting intentions to adopt technology. These findings highlight important implications for teacher education programs, indicating that fostering positive attitudes toward AI technologies may be especially effective in promoting their integration into teaching practices, consistent with other studies [71].

The third research question—To what extent do technology self-efficacy and attitudes toward AI-based mobile applications predict intentions to integrate AI-based mobile applications in teaching SWLD?—was addressed using stepwise multiple regression analysis. This analysis examined the impact of the potential predictor variables on preservice teachers' intentions to integrate AI-based mobile applications into their teaching practices. The model summary is presented in Table 8.

**Table 8.** Model summary

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. Error Estimate
1	0.878	0.770	0.769	0.52590

The regression model predicting preservice teachers' intentions to integrate AI-based mobile applications into their teaching, based on technology self-efficacy and attitudes toward AI-based mobile applications, yielded an R = 0.878, with R<sup>2</sup> = 0.77 and an adjusted R<sup>2</sup> = 0.76. This indicates that 76% of the variance in the dependent variable—teachers' intentions to integrate AI-based mobile applications—can be explained by the independent variables of technology self-efficacy and attitudes toward AI-based mobile applications.

Table 9 shows that both independent variables, technology self-efficacy and attitudes toward AI-based mobile applications, were significant predictors of preservice SETs' intentions to integrate AI-based mobile applications into their teaching, with a significance level of p < 0.05.

**Table 9.** ANOVA results

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	280.199	2	140.099	517.586	.000
Residual	80.933	299	0.271		
Total	361.132	301			

Based on Table 10, the unstandardized coefficients show that attitudes toward AI-based mobile applications (B = 1.072, p < 0.05) and technology self-efficacy (B = 0.135, p < 0.05) significantly contributed to preservice SETs' intentions to integrate AI-based mobile applications into their teaching.

**Table 10.** Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	F	Sig.
	B	Beta	Beta (β)		
(Constant)	-0.417	0.128		-3.250	0.001
ATM	1.072	0.055	0.796	19.639	0.000
TSE	0.135	0.049	0.111	2.744	0.006

Using these unstandardized coefficients along with the constant, preservice SETs' intentions to integrate AI-based mobile applications into their teaching can be predicted using Formula 1.

$$ITUM = -0.417 + 1.072 * ATM + 0.135 * TSE$$

The findings of this study highlight that technology self-efficacy and attitudes toward AI-based mobile applications are key factors affecting preservice SETs' intentions to integrate these applications into their teaching. A 1-point increase in the attitudes toward AI-based mobile applications score was estimated to boost teachers' intentions to integrate AI-based mobile applications by approximately 1.072 points. This large impact suggests that the more positive teachers feel about AI applications, the more likely they are to adopt them in their teaching. These results highlight the critical role of attitude in shaping teachers' behavior, reinforcing technology adoption models such as the TAM, which posits that positive attitudes toward technology drive greater acceptance and integration. The findings also align with the TRA, emphasizing the importance of attitude in shaping intentions to use technology [65], and support conclusions from prior studies [52].

The fact that attitudes toward AI-based mobile applications significantly predict teachers' intentions underscores the need for decision-makers to implement interventions aimed at improving these attitudes to encourage the use of AI-based applications in educational settings. Such interventions could include additional training, workshops, or awareness programs highlighting the benefits of these technologies. These findings align with prior research identifying attitudes as a key factor in the successful adoption of educational technology [68–69]. When preservice teachers hold favorable views about AI-based applications, they are more likely to experiment with and regularly use these technologies, particularly when they perceive them as enhancing the learning experiences of SWLD.

The results of this study revealed that technology self-efficacy plays a key role in predicting preservice SETs' intentions to integrate AI-based mobile applications into their teaching. Specifically, a 1-point increase in technology self-efficacy corresponds to an estimated 0.135-point increase in teachers' intentions to use AI-based applications in their instructional practices. Although this effect is smaller compared to the impact of attitudes toward AI-based mobile applications, it remains significant, aligning with prior research highlighting the role of self-efficacy in technology acceptance and actual use [45, 47]. Technology self-efficacy reflects teachers' confidence in effectively using technological tools in the classroom, and as confidence grows, so does the willingness to integrate AI-based technologies. However, the smaller effect size (0.135) suggests that attitudes toward AI applications may play a more critical role in adoption decisions. One explanation is that even confident teachers may need strong positive attitudes and evidence of effectiveness to fully commit to using AI tools. Additionally, as preservice teachers become more familiar with technology and given the user-friendly nature of various AI applications, their willingness to adopt these tools may depend more on their beliefs about the tools' value than on technical confidence alone. This shows the importance of fostering positive attitudes, as they help teachers effectively apply their skills and take action. These findings suggest that teacher preparation programs should emphasize not only the development of technology self-efficacy but also the cultivation of positive attitudes toward AI-based applications. By doing so, they can promote the effective integration of these tools, ultimately supporting more dynamic, inclusive, and personalized learning experiences for students with learning disabilities.

## 5 CONCLUSIONS

This study highlights the significant role of technology self-efficacy and attitudes toward AI-based mobile applications in predicting preservice SETs' intentions to integrate these applications into their teaching practices. The findings indicate that attitudes toward AI-based mobile applications are the strongest predictor, suggesting that when teachers perceive and value these tools, it heavily affects their intention to use them in teaching SWLD. While technology self-efficacy also contributes to predicting intentions, its impact is comparatively smaller. These results have important implications for teacher preparation programs, which should focus on both developing technical skills and fostering positive attitudes toward AI technology in special education. The findings suggest that decision-makers should provide preservice SETs with training on AI-based mobile applications and address any concerns regarding their effectiveness. By doing so, institutions could enhance both self-efficacy and attitudes, encouraging greater adoption of these tools in inclusive classrooms.

According to these results, promoting the effective integration of AI-based mobile applications in special education requires a dual focus: supporting the development of technical competencies and fostering positive attitudes toward innovative technologies. These efforts will ensure that preservice teachers are well-equipped and motivated to leverage AI-based mobile applications to enhance learning outcomes for SWLD. Teacher training programs should include specific workshops and modules, such as hands-on sessions to build technical competence and technological self-efficacy, scenario-based activities to demonstrate practical benefits, and discussions addressing challenges like privacy concerns. Additionally, providing access to AI applications can familiarize preservice teachers with these tools and support their adaptation to teaching practices.

The limitations of this study include the homogeneity of the sample, as all participants were from the same university, and the low representation of male students (8.1%), indicating the gender imbalance in the SETs major at UOJ, where males comprise only 7.9% of the population. This imbalance may affect the generalizability of the findings. Furthermore, the sample size was relatively small because first-year students, who represent approximately half of the population (186), were excluded due to their lack of necessary knowledge and experience to respond to the survey. Future research should consider a larger and more diverse sample, expanding to multiple universities and achieving a more balanced gender representation to mitigate potential biases. The reliance on self-reported data may also introduce bias; future studies could include qualitative methods, such as interviews or focus groups, to gain deeper insights into the barriers preservice teachers face in adopting AI tools. Furthermore, exploring additional variables, such as cultural influences and access to technology, could provide a more comprehensive understanding of the factors impacting the integration of AI-based mobile applications in special education. Addressing these limitations would strengthen the evidence base and support the development of effective strategies for integrating AI technologies in teaching SWLD.

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