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Examining the Influence of Social Media Networks on Kindergarten Student Teachers: An Analysis from the Technology Acceptance Model (TAM) Perspective.

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Abstract

This study delves into the influence of social media networks on prospective kindergarten instructors and their technology acceptance and usage behaviors. The study examines how views of technology's utility and usability affect this particular cohort of educators' intentions to use technology and, ultimately, how those intentions affect actual usage behavior. It draws on the well-known Technology Acceptance Model (TAM). The findings demonstrate significant empirical evidence for the validity of the TAM components in the setting of kindergarten student teachers after a thorough investigation of research hypotheses. The study specifically confirms that perceived usefulness and convenience of use both significantly and favorably influence intention to use. The study also shows that behavioral intention has a large, favorable impact on use behavior. This study has consequences for both theory and practice. As part of the theoretical contributions, TAM's application to the field of early childhood education is expanded, and its components are validated in this setting. In a practical sense, educational organizations and politicians can use these observations to help develop efficient technology integration strategies for kindergarten student teachers, thereby improving their teaching methods and, ultimately, the learning experiences of young learners. Thus, this study fills the gap between theory and practice by illuminating the adoption and use of technology by kindergarten student teachers. It also emphasizes the significance of technology integration in determining the direction of early childhood education in the future.

Keywords: Social Media Networks, Perceived Usefulness, Perceived Ease of Use, Intention to Use, Actual Use

1. Introduction

Today's digital age has brought about unheard-of changes in many areas of human interaction and endeavor as a result of the rapid development of technology (Xie, Chu et al. 2019). The introduction and widespread use of social media networks stand out as a key development among these revolutionary changes, changing how individuals communicate, exchange information, and connect with others. Social media networks were designed as venues for intimate social interaction, but they have quickly widened their influence to encompass a variety of fields, including education (Xie, Chu et al. 2019, Sima, Gheorghe et al. 2020) . Technology and education are now intertwined, creating a dynamic environment where educators, including kindergarten instructors, face new opportunities and difficulties (Tao 2019, Al-Zu'bi, Al-Mseidin et al. 2022). The effect of social media networks on kindergarten instructors is a topic of growing importance in the Hashemite Kingdom of Jordan, a country renowned for its rich cultural legacy and dedication to educational improvement (Habes,

Salloum et al. 2019, Al-Mawdieh 2020). The traditional teaching approaches that emphasize physical interaction and learning materials have historically been used in kindergarten education, a crucial period in a child's early development. The introduction of social media networks, however, has given this environment a digital component and could change how kindergarten teachers interact with their kids, their colleagues, and educational materials (Yuliejantiningsih 2020, Alzeaideen, Alelaimat et al. 2022, Qureshi, Mahdiyyah et al. 2022). The modern digital era has seen enormous changes in many facets of life, including education, due to the rapid growth of technology. The incorporation of social media networks into educational activities is one of the noticeable changes (Hardhienata, Suchyadi et al. 2021, Rahmatullah, Mulyasa et al. 2022). Social media platforms, which were first created to facilitate social interaction and communication, are increasingly being used as tools for sharing knowledge, collaborating, and disseminating information in the context of education. The development of social media has created new opportunities for educators to improve their lesson plans and collaborate with colleagues around the world (Bruns 2019, Saud, Mashud et al. 2020)

Jordan, a country that places a high priority on education and is dedicated to giving its young students high-quality learning opportunities, has not escaped the revolutionary impact of technology on its educational environment (Elumalai, Sankar et al. 2021). Technology and social media platforms have been increasingly included into kindergarten education, which establishes the groundwork for a child's academic career, as resources for both instructors and pupils (Danniels, Pyle et al. 2020) The purpose of this study is to investigate the effects of social media platforms on Jordanian kindergarten teachers from the perspective of the Technology Acceptance Model (TAM). The TAM, created by Fred Davis in the 1980s, is a recognized theoretical framework used to analyze and forecast how people will embrace and use new technology. The model contends that individuals' intentions to accept and use a technology are significantly influenced by their perceptions of its usefulness and simplicity of use. The TAM can be used to gain important insights about how and why kindergarten teachers in Jordan adopt or reject social media platforms in the context of education (Hamid, Salleh et al. 2020, Abu-Taieh, AlHadid et al. 2022).

The educational environment in kindergarten is unique because it focuses on supporting young children's social, emotional, cognitive, and physical development. Therefore, it is crucial to comprehend how social media platforms fit with the particular requirements and difficulties faced by Jordanian kindergarten teachers (Kokkalia, Drigas et al. 2019, Tabiin 2020). This study will delve into the following key aspects:

- Perceived Usefulness: examining how kindergarten teachers view social media as a tool for improving instruction, increasing parent communication, and accessing educational materials.

  H1 Perceived Usefulness have significate effect on intention to use
- Perceived Ease of Use: examining the ease with which kindergarten teachers use social media for instructional reasons, while taking into account their familiarity and skill with technology.

  H2 Perceived Ease of Use have significate effect on intention to use

- Intention to Use: examining the reasons behind the judgments made by kindergarten teachers as they decide whether to use social media networks into their teaching methods.

  H3: Intention to Use have significate effect on actual use
- Actual Use: refers to the practical implementation of ideas or technologies, illuminating benefits and difficulties in daily life. Understanding how things work and interact helps us make wise decisions and changes.

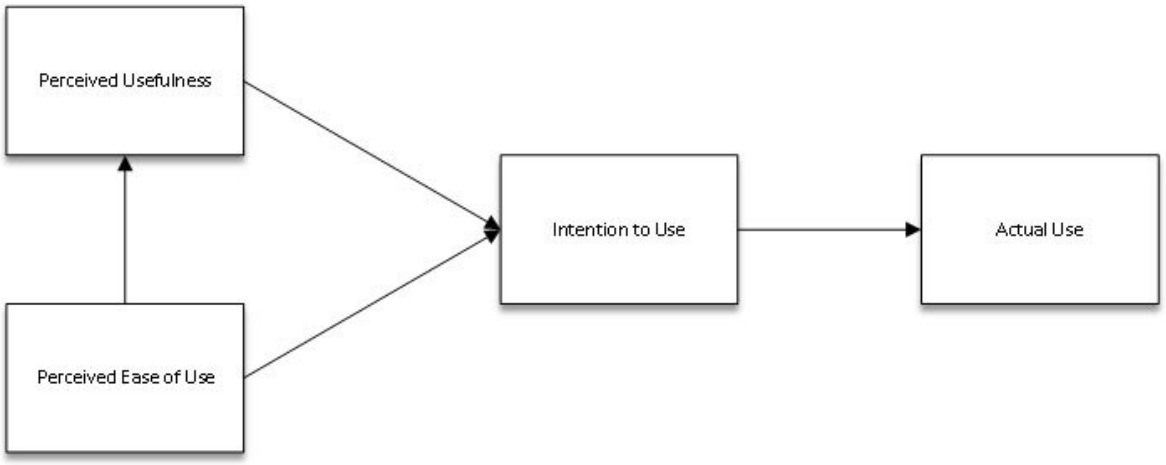

Fig (1) Technology Acceptance Model

This research intends to offer useful insights for educational policymakers, administrators, and teacher training programs by thoroughly examining the impact of social media networks on kindergarten teachers in Jordan from a TAM viewpoint. The findings of this study could aid in the creation of policies that encourage the appropriate and efficient use of social media platforms, thereby raising the standard of early childhood education in Jordan.

2. Problem Statements

Social media networks are being progressively incorporated into educational settings, which is changing how educators approach teaching and learning (Blaschke and Hase 2019, Katz and Nandi 2021). This technology development raises important considerations about its effects on kindergarten instructors, their teaching methods, and the larger educational ecology in the context of kindergarten education in Jordan (Al-Zu'bi, Al-Mseidin et al. 2022). Social media networks pervade this critical developmental period, thus it is important to address the challenges and opportunities they present to kindergarten instructors and their teaching methods (Nettlefold and Williams 2021, Prioletta and Davies 2022).

Kindergarten instruction is distinguished by its special emphasis on fostering young learners' holistic development, which includes social, emotional, cognitive, and physical domains (Becker, Rigaud et al. 2023). The advent of digital instruments, particularly social media networks, is currently reshaping the old ways that have supported this stage for centuries (Manago, Santer et al. 2021). Given their unique position in defining basic learning experiences, it is challenging to comprehend how this transformation will impact kindergarten instructors in Jordan's teaching strategies (Arcuino, Cagape et al. 2022) Furthermore, different people have different levels of receptivity to and incorporation of new technologies. Jordan's kindergarten instructors come from a variety of backgrounds, have differing degrees of technological know-how, and have different opinions on how technology should be used in the classroom. Finding the factors that affect people's acceptance or opposition to using social media networks for educational purposes becomes crucial as a result (Chiu 2021, Szymkowiak, Melović et al. 2021, Qawaqneh, Ahmad et al. 2023, Rawash, Alawamreh et al. 2023)

This issue is further complicated by the cultural and contextual quirks of Jordan's educational system. How kindergarten teachers in Jordan view and use social media networks as teaching tools can be strongly influenced by society norms, cultural values, and institutional support systems(Jumiaan, Alelaimat et al. 2020, Khalil, Aljanazrah et al. 2023). The purpose of this study is to look at how Jordanian kindergarten instructors are affected by the integration of social media networks. The study also aims to pinpoint the elements that affect kindergarten

teachers' adoption, use, and adaption of these platforms in their instructional strategies.
This study seeks to shed light on the complex interactions between technology, education, and the teaching strategies used by kindergarten teachers in Jordan by examining the many facets of this issue. The results of this study may help educational policymakers, administrators, and teacher preparation programs create efficient ways that take advantage of social media networks' advantages while navigating the difficulties unique to the kindergarten setting (Sobaih, Hasanein et al. 2020, AlAjmi 2022)

3. Methodology

The major goal of this study is to examine the effects of integrating social media networks on kindergarten teachers in Jordan as they adopt TAM theory.

a. Population and sample size

The concepts of population and sample size are essential to statistics and research design. The population in this case is made up of every person who has ever worked as a kindergarten teacher at Zarqa University, as well as every single thing in which a researcher is interested. In a study, a sample, which is a smaller percentage of the population, represents the population. Moreover, the sample size is the total number of individuals, objects, or events included in the sample. The sample size is an important consideration in study design since it affects the accuracy and dependability of the results. In addition, a sample size of (150) Zarqa University students was used in this investigation. To verify the validity and reliability of the survey items, a thorough validation process was carried out before the survey was launched.

b. Study Tools

The study's main instrument was how effectively Jordanian kindergarten instructors used social media networks. The study also aims to pinpoint the elements that affect kindergarten teachers' adoption, use, and adaption of these platforms in their instructional strategies.

The idea of social media was recognized in the initial step. The items were later gathered to reflect all of the characteristics that characterize personality traits. At first, 24 elements reflecting factors were created. The scale was reviewed and checked by professors of education, and their comments and ideas were integrated to determine which items should be used to measure the study's objectives. These criteria included suitability for measurement, clarity, and openness to explanation. Two items from the SPSS program's analysis set have been removed. Finally, 24 items were kept from the test; each item includes five possible answers.

4. Data Analysis and Findings

The data was analyzed using SPSS version 22 and Smart PLS version 3. The previous application was specifically used to obtain descriptive statistics for the sample. On the other hand, the latter was utilized to examine the latent variable within the causal structure. The following subsections contain a report of the statistical analysis' findings.

a. Descriptive Analysis

The study included all of the kindergarten instructors in the Zarqa governate. As a result, we randomly selected 100 people (Sekaran and Bougie 2010). At the end, 81 questionnaires had been gathered, constituting a representative sample.

b. Evaluation of the Measurement Model

The evaluation of the measuring model is a crucial step in the field of research and data analysis, especially in disciplines like psychology, economics, and the social sciences (Sullivan and Ford 2010). This model evaluates the connections between latent (unobservable) variables and their observed indicators or variables (Vinzi, Trinchera et al. 2010). This evaluation's main objective is to confirm that the measurement model accurately depicts the relevant underlying components or concepts. To evaluate the model's fit to the data, researchers employ a variety of statistical approaches such confirmatory factor analysis (CFA) or structural equation modeling (SEM). For meaningful conclusions to be drawn from empirical research, it is crucial that the observed variables are good markers of the hidden constructs. Additionally, evaluation aids in spotting any bias or potential issues in the measuring model, enabling researchers to make the required corrections to raise the general standard and accuracy of their research findings (Pemstein, Meserve et al. 2010, Vinzi, Trinchera et al. 2010, Sekaran and Bougie 2016).

The measurement model was put to the test using 20 reflected indicators, as shown in Fig. 2. The items PE1 and PE2 were discovered to have factor loadings that were less than 0.50 (Oerke and Bogner 2010). According to Sáenz, Villagra et al(2006) .the indicator should be removed for items with Variable factor loading values ranging from 0.40 to 0.70 if doing so will increase the composite reliability (CR) above the recommended threshold value. In this study, these signs were thus eliminated by running a PLS algorithm test.

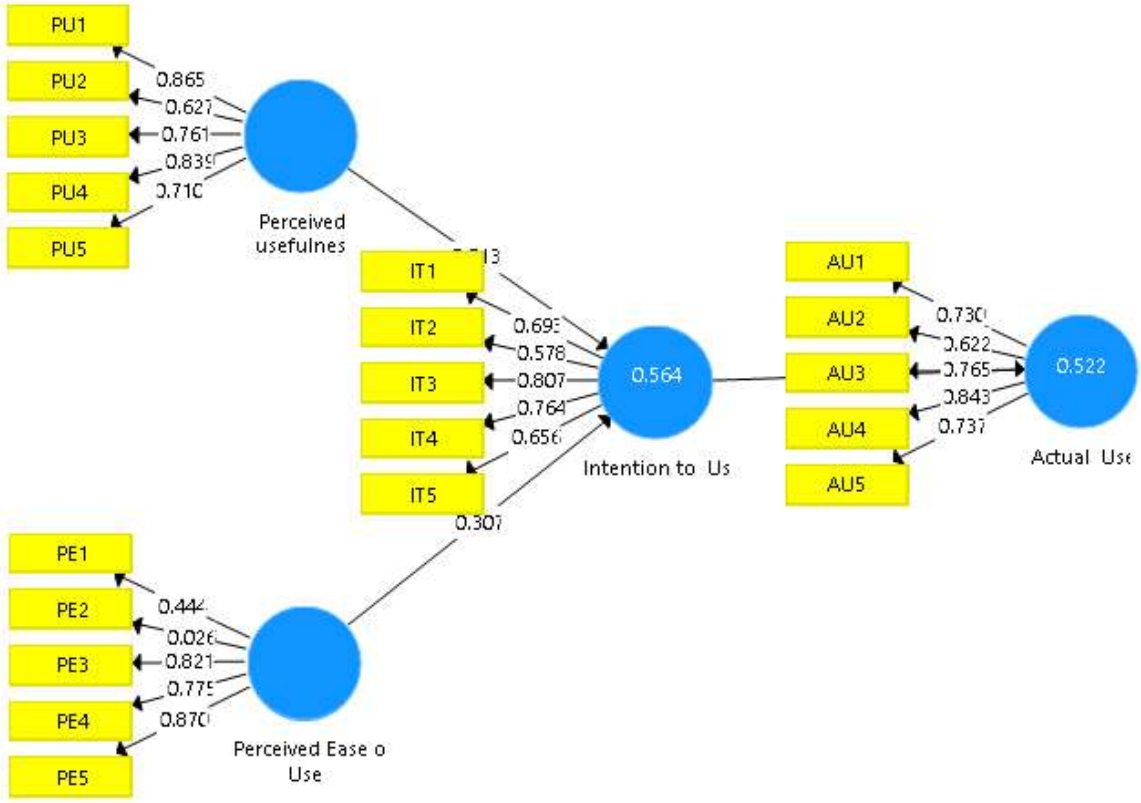

Figure 3 *Measurement Model*

The convergent validity of each concept evaluated was based on the Average Variance Extracted (AVE), as indicated in Table 1. The degree to which a measure has a positive connection with additional measures of the same construct is known as convergent validity (Hair Jr, Hult et al. 2016). According to recommendations from earlier studies, the appropriate minimum value of AVE in this study was 0.4. (Hair Jr, Hult et al. 2016, Ramayah, Ling et al. 2016). Based on the results, perceived usefulness had the greatest AVE score (0.586), while perceived ease of use had the lowest score (0.446). In relation to their convergent validity, all of these values were, to put it briefly, at acceptable levels. Additionally, the CR values listed in Table 1 were utilized to gauge each constructor's internal consistency. A higher CR value is desired even though it is advised that the benchmark value be at least 0.70. The CR values of each individual construct are greater than the benchmark value, ranging from 0.757 to 0.875. The variables have met the requirements for convergent validity based on the provided benchmark values.

Table 1 Results of Measurement Model

Variable	Items	Factor Loading	Composite Reliability (CR)	Average Variance Extracted (AVE)>50%
Perceived Usefulness	PU1	0.865	0.875	0.586
	PU2	0.62		
	PU3	0. 761		
	PU4	0.839		

	PU5	0.10		
	PE1	~~0.444~~		
	PE2	~~0.026~~		
	PE3	0.821		
	PE4	0. 775		
Perceived Ease of Use	PE5	0.870	0.757	0.446
	IT1	0.693		
	IT2	0.578		
	IT3	0.807		
	IT4	0. 764		
Intention to use	IT5	0.656	0.829	0.496
	AU1	0.730		
	AU2	0.622		
	AU3	0.765		
	AU4	0.843		
Actual use	AU5	0.737	0.859	0.552

The current study applied the Fornell and Larcker (1981) and Henseler, Ringle et al. (2015) criterion for assessing the discriminant validity of the examined constructs. A given construct is considered to have such discriminant validity if the average square root of extracted variance is higher than the correlation values of all variables (Hair Jr, Hult et al. 2016). According to the Fornell and Larker criterion, as shown in Table 2, the results show that each construct has appropriate discriminant validity because its squared correlation is less than the average variance recovered. Additionally, the production of the disattenuated construct score follows the Heterotrait-Monotrait Ratio (HTMT), which provides an assessment of the correlation between constructs use 0.9 as the cutoff value. As shown in Table 3, this study came to the conclusion that all the constructs fit the requirements and that there is no evidence of a lack of discriminant validity.

Table 5. Assessment of Discriminant Validity (Fornell and Larcker 1981)

	Perceived Ease of Use	**Actual Use**	**Intention to Use**	**Perceived usefulness**
Perceived Ease of Use	**0.668**			
Actual Use	0.559	**0.743**		
Intention to Use	0.643	0.722	**0.704**	
Perceived usefulness	0.654	0.655	0.703	**0.765**

Table 6: Assessment of Discriminant Validity (HTMT) (Henseler, Ringle et al. 2015)

	Perceived Ease of Use	**Actual Use**	**Intention to Use**	**Perceived usefulness**
Perceived Ease of Use				
Actual Use	**0.848**			
Intention to Use	0.897	**0.912**		
Perceived usefulness	**0.827**	**0.777**	**0.816**	

All of the constructs are legitimate measures of their respective constructs, according to

parameter estimates and statistical significance. The total results offer empirical proof in favor of the measurement model used in this study's reliability, convergent validity, and discriminant validity.

C. Evaluation of the Structural Model

A crucial step in empirical research, especially in disciplines like economics, sociology, and psychology, is the examination of the structural model (Steiger 1990, Cabrera, Nora et al. 1992). To comprehend the underlying mechanisms and causal pathways in a specific phenomenon, this model looks at the interactions between multiple latent constructs or variables. Researchers evaluate how well the structural model fits with their theoretical ideas and the observable facts using methods like structural equation modeling (SEM). In order to assess the structural model, one must look at the quality and importance of the relationships between the variables as well as the model's overall goodness-of-fit (Steiger 1990, Cabrera, Nora et al. 1992). This assessment aids researchers in determining how well their suggested theoretical framework captures the phenomena they are researching in the real world. It is possible to gain a greater knowledge of the phenomenon being studied by using a well-fitting structural model, which also confirms the theoretical foundations of the research and offers insights into how various factors interact and influence one another. The determination coefficient and the significance level of the path coefficients (beta values) are the main evaluation criteria for the structural model's goodness. The higher the adjusted value, the better the structural equation is thought to be because it can explain more of the exogenous variable's variation with endogenous variables (Lendaris 1980, Steiger 1990, Cabrera, Nora et al. 1992). The findings from testing the research hypotheses in figure 3 and table 4 indicate that all of the suggested research hypotheses were found to be valid. The results also indicate that the Perceived usefulness significantly and positively influence Intention to Use ($ß = 0.540$, $t = 6.948$, $p < 0.05$). Therefore, H1 is supported. In addition the second hypothesis which is that Perceived Ease of Use significantly and positively influence Intention to Use ($ß = 0.317$, $t = 3.513$, $p < 0.05$). Therefore, H2 is supported. The results also indicate that the Behavioural Intention significantly and positively influence Use behavior ($ß = 0.720$, $t = 6.948$, $p < 0.05$). Therefore, H3 is supported.

Table 7. Hypothesis Testing

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Perceived Ease of Use -> Intention to Use	**0.317**	**0.312**	**0.090**	**3.513**	**0.000**
Intention to Use -> Actual Use	**0.720**	**0.730**	**0.031**	**23.510**	**0.000**
Perceived usefulness -> Intention to Use	**0.540**	**0.553**	**0.078**	**6.948**	**0.000**

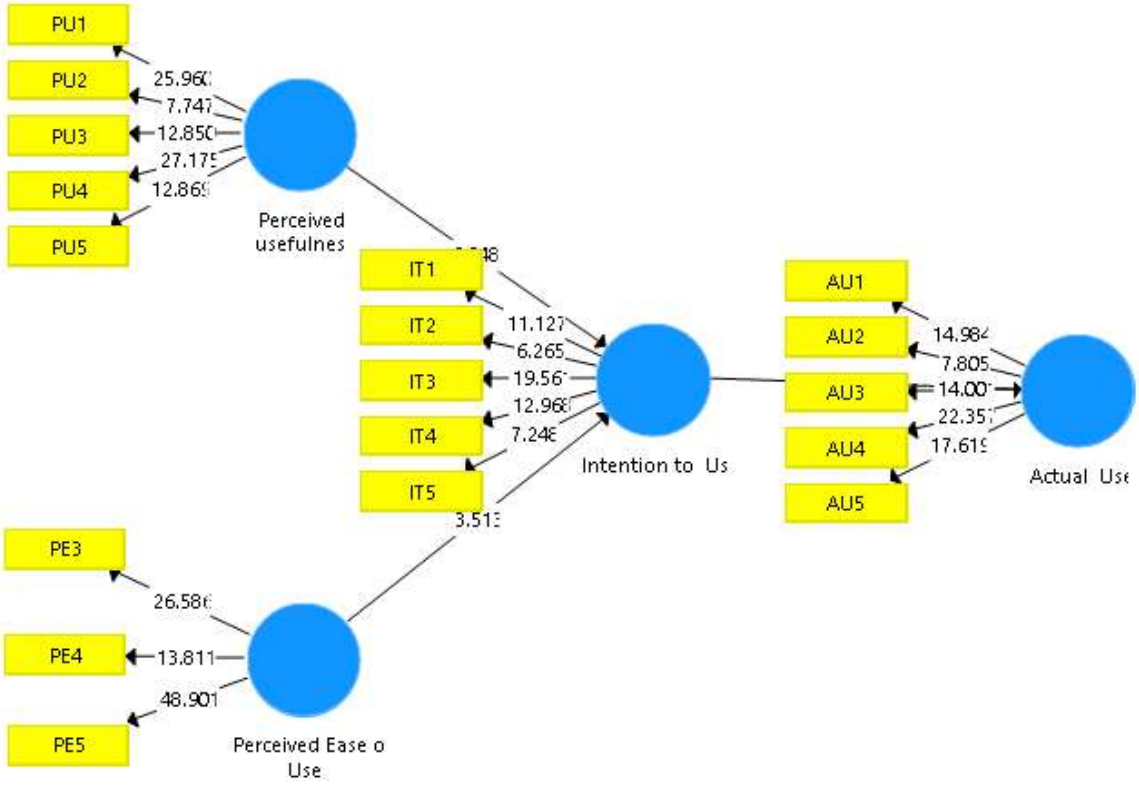

Fig. 3 Structural Model

5. Theoretical and Practical Contribution

The study broadens the scope of the Technology Acceptance Model's (TAM) usage to the special situation of kindergarten student teachers. By doing this, it improves TAM's theoretical underpinnings and highlights its applicability outside of conventional professional settings. Your findings confirm important TAM variables and provide empirical evidence for their linkages, particularly those between perceived utility and use intention, perceived usability and use intention, and behavioral intention and use behavior (Hong, Zhang et al. 2021, Ahmad and Zabadi 2022). The body of knowledge around the acceptability of technology and its use in various situations is enriched as a result (Huang, Sherman et al. 2009, Gonnuru 2013, Alawamreh and Elias 2015). The study also has applications for policymakers and educational institutions. It offers useful information that can help decision-makers in teacher preparation programs. Your research suggests that improving the perceived value and usability of digital tools for kindergarten student teachers can have a favorable impact on both their intention to utilize and actual use of these resources. This information can help build more effective technology integration strategies for teacher training, which could result in better teaching techniques. Ultimately, by encouraging more effective technology uptake and integration in the classroom, this has the potential to be advantageous for both instructors and early students (Hew and Brush 2007, Alawamreh and Elias 2016, Irtaimeh, Obeidat et al. 2016, Obeidat 2021).

In summary, the research not only advances our theoretical understanding of technology acceptance but also offers actionable guidance for educational institutions, ultimately aiming

to enhance the educational experience for kindergarten students through the effective use of technology by their teachers.

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