EDUKASIA: Jurnal Pendidikan dan Pembelajaran
Vol. 7, 2 (July-December, 2026), pp. 847-860
ISSN: 2721-1150; EISSN: 2721-1169; DOI: 10.62775/edukasia.v7i2.2172

Accelerating Educational Technology Adoption in Elementary Schools: The Role of Student Interns as Catalysts for Teacher Acceptance

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ARTICLE INFO

Keywords:

academic interaction;
internship students;
technology acceptance;
teacher attitudes;
elementary education

Article history:

Received 2025-02-22
Revised 2026-06-19
Accepted 2026-09-06

ABSTRACT

Digital transformation in education requires teachers to integrate technology effectively into teaching and learning processes. However, teachers' acceptance of educational technology remains uneven and is influenced not only by cognitive perceptions but also by professional interaction in school settings. This study examines the influence of academic interaction between student interns and elementary school teachers on teachers' attitudes toward adopting learning technology by using the Technology Acceptance Model (TAM). This study employed a quantitative correlational design involving 108 elementary school teachers from partner schools of the Primary School Teacher Education Program at Universitas Katolik Indonesia Santu Paulus Ruteng in East Manggarai Regency. The data were analyzed using Structural Equation Modeling (SEM). The findings show that academic interaction has a positive and significant effect on perceived ease of use and perceived usefulness of technology. Perceived ease of use also positively affects perceived usefulness and teachers' attitudes toward technology, while attitude toward technology significantly strengthens behavioral intention to use technology in teaching practice. Mediation analysis further indicates that perceived ease of use and perceived usefulness significantly mediate the relationship between academic interaction and teachers' attitudes toward technology. These findings suggest that academic interaction between student interns and teachers can function as a contextual learning mechanism that accelerates educational technology adoption in elementary schools.

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1. INTRODUCTION

The development of digital technology has brought significant changes across various sectors of life, including education. This transformation encourages educational institutions to adapt learning processes to the advancement of information and communication technologies. The integration of

technology in education is not only related to the use of digital devices but also involves the development of teachers' digital competencies so that they are able to utilize technology effectively in pedagogical practices (Falloon, 2020; Fernández-Sánchez et al., 2022; Jamun et al., 2023; Prasetyo et al., 2024; Revuelta-Domínguez et al., 2022; Sihanita et al., 2024). Digital transformation has also altered the ways teachers design, implement, and evaluate learning activities. In the context of elementary education, the use of technology has become increasingly important in creating learning experiences that are interactive, adaptive, and meaningful in accordance with the needs of students in the digital era. Therefore, technology integration in learning is no longer viewed as an optional supplement but rather as an essential component in efforts to improve the quality of education (Joya et al., 2025; Revuelta-Domínguez et al., 2022).

Previous studies have shown that digital technology plays an increasingly important role in enhancing learning flexibility, student engagement, and opportunities for personalized instruction. The use of digital tools, artificial intelligence applications, and adaptive learning platforms can support more responsive learning activities, automate routine instructional tasks, and provide learning experiences that are better aligned with students' needs (Alshammari et al., 2025; Sanchez et al., 2025). Technology-mediated learning environments can also facilitate more interactive and collaborative experiences, enabling students to participate actively in the process of knowledge construction (Tu & Chu, 2020). When integrated in accordance with appropriate pedagogical objectives, artificial intelligence-supported and adaptive learning environments may further strengthen student engagement and digital resilience (Jallali et al., 2026). Collectively, these findings indicate that educational technology can transform instructional practices by making learning more flexible, participatory, personalized, and responsive to the demands of the digital era.

Despite these potential benefits, teachers continue to face substantial challenges in adopting and integrating educational technologies into classroom practice. These challenges are frequently associated with limited technological infrastructure, inadequate institutional support, and insufficient digital pedagogical competence. Beyond technical constraints, teachers' readiness to adopt technology is also influenced by psychological and professional factors, including perceived usefulness, perceived ease of use, confidence in using digital tools, technological knowledge, attitudes, professional self-efficacy, school culture, and access to sustained training (Ertmer & Ottenbreit-Leftwich, 2010; Jakaria et al., 2025; Prasetyo et al., 2024; Scherer et al., 2019; Sitorus & Tamba, 2026; Spiteri & Chang Rundgren, 2020; Theodorio, 2024). Teachers' communication abilities and digital literacy may likewise influence their professional performance in technology-mediated educational settings (Balaya et al., 2024). Empirical evidence further demonstrates that teachers' competencies are closely associated with their attitudes toward technology integration. For example, structural models examining STEM teaching practices reported that teachers' competencies significantly influenced their attitudes toward technology use, with effect coefficients ranging from $\beta = 0.46$ to $\beta = 0.49$ (Chiriacescu et al., 2023). These findings confirm that the successful adoption of educational technology depends not only on the availability of digital resources but also on teachers' competencies, perceptions, confidence, and professional learning opportunities.

One of the most widely used theoretical frameworks for explaining technology adoption behavior is the Technology Acceptance Model (TAM). This model posits that technology acceptance is primarily influenced by two constructs: perceived usefulness and perceived ease of use. These perceptions shape individuals' attitudes toward technology, which subsequently influence their intention to use technology in real-world practice (Davis, 1989; Venkatesh & Davis, 2000). In educational contexts, TAM has been widely applied to analyze the acceptance of digital learning technologies, online learning systems, and various technology-based instructional strategies by both teachers and students (Nguyen et al., 2025). The model is frequently employed because it effectively explains behavioral intentions in

adopting technology through individuals' cognitive perceptions and attitudes. Recent reviews confirm that TAM remains a dominant framework in educational technology adoption research, although its explanatory power can be strengthened by incorporating social, personal, and facilitating factors (Granić, 2022).

Beyond individual perceptions, social interaction and supportive collaborative learning environments also play a key role in shaping teachers' readiness, self-efficacy, and sustained integration of technology (Chiu, 2022; Shen et al., 2024). In this study, academic interaction (IA) is not treated merely as a background condition of the internship program, but as a contextual and social mechanism through which communication, collaboration, and knowledge exchange between student interns and teachers influence technology acceptance. Through sustained interaction in authentic classroom settings, teachers are not only exposed to new digital tools but are also supported in understanding their pedagogical relevance and practical feasibility. In this sense, IA occupies an important theoretical position because it connects teachers' cognitive perceptions of technology with the social processes of professional learning, pedagogical reflection, and collaborative problem-solving. Interactions within peer learning environments have been shown to influence learning motivation, instructional effectiveness, and professional development through processes of knowledge sharing and academic collaboration (Tu & Chu, 2020; Väätäjä, 2025). School-based professional collaboration provides opportunities for sharing, experimentation, joint instructional design, and reflective professional learning (De Jong et al., 2022; Dewanto et al., 2025; Xianhan et al., 2022).

In the context of teacher education, academic interaction between pre-service teachers and in-service teachers during internship or field practice programs represents an important form of professional collaboration. Internship programs provide opportunities for pre-service teachers to become directly involved in classroom teaching activities while interacting with experienced teachers in schools. Through these interactions, student interns may introduce new pedagogical strategies and digital learning technologies that can enrich teachers' instructional practices. More importantly, student interns may function as informal change agents who bring up-to-date digital literacy directly into classroom practice and encourage teachers to experiment with emerging educational technologies. Their presence creates opportunities for reverse mentoring, particularly for senior teachers who possess extensive pedagogical experience but may be less confident in using newer digital tools. In such a reciprocal relationship, teachers contribute contextual classroom wisdom, while student interns provide contemporary digital knowledge and technology-based learning strategies. This reciprocal relationship can be understood as reverse mentoring and intergenerational professional learning, in which pre-service teachers contribute current digital knowledge while experienced teachers contribute contextual and pedagogical expertise (Batista et al., 2024; Bertram et al., 2023; Widari & Jazadi, 2025). Collaboration between teachers and student interns can therefore enhance digital pedagogical competencies and promote openness toward technology-based instructional innovations (Durak, 2021; Jamun et al., 2023; Stenbom & Geijer, 2025a; Tondeur et al., 2012).

Although many studies have examined factors influencing technology adoption in education, most research has primarily focused on teachers' individual competencies, institutional policies, or formal professional development programs. Studies that specifically highlight the role of academic interaction between student interns and teachers as a social mechanism influencing teachers' attitudes toward technology adoption remain relatively limited. This gap becomes even more significant in educational settings where formal government-supported technology training programs are absent, limited in scope, or unevenly distributed across regions. In such contexts, teachers often depend on informal and practice-based professional learning rather than structured institutional training. Evidence indicates that informal teacher learning through colleagues, students, reflection, and practice can complement formal professional development and support technology integration, particularly in

resource-constrained settings (Abedi et al., 2026; Sitorus & Tamba, 2026; Xianhan et al., 2022). As a result, informal academic interaction may become a crucial pathway through which teachers gain access to updated digital knowledge, observe technology use in authentic instructional settings, and develop confidence in experimenting with new pedagogical tools. Existing research has tended to emphasize formal training, infrastructure provision, or institutional support as the primary drivers of school technology integration. However, such a perspective does not fully capture the realities of schools that must respond to digital transformation with limited formal external support. In these environments, collaborative interaction between student interns and teachers may function as an alternative mechanism of professional support, enabling technology-related knowledge transfer through daily communication, co-teaching, shared reflection, and classroom-based problem-solving. Therefore, the theoretical and practical role of informal academic interaction as a catalyst for technology acceptance deserves greater attention, particularly in elementary school settings where teachers' digital adaptation may depend heavily on collaborative professional exchange rather than on formal training alone (McGill & Klobas, 2009; Pappa et al., 2024; Stenbom & Geijer, 2025b).

Based on this background, this study aims to analyze the influence of academic interaction between student interns from the Primary School Teacher Education Program and elementary school teachers on teachers' attitudes toward adopting learning technologies. This study is expected to contribute theoretically to the development of research on technology acceptance in education by positioning academic interaction as a socially embedded mechanism that links professional collaboration, intergenerational knowledge transfer, and teachers' technology acceptance. Practically, the findings are also expected to provide implications for the development of internship programs as a means of strengthening teachers' digital pedagogical competencies in elementary schools.

2. METHODS

Research Design

This study employed a quantitative correlational design. The quantitative approach was selected because the primary objective of the study was to examine the relationships among latent variables and to test a theoretically specified model of teachers' acceptance of learning technology in elementary schools. The conceptual framework was grounded in the Technology Acceptance Model (TAM), which explains technology acceptance through the interrelationships among perceived ease of use, perceived usefulness, attitude toward technology, and behavioral intention to use technology (Davis, 1989; Venkatesh & Davis, 2000). In educational settings, TAM has been widely used to explain teachers' acceptance of digital learning technologies and technology-based instructional practices (Nguyen et al., 2025; Scherer et al., 2019).

The study is presented consistently as quantitative correlational research because the core analysis focused on survey data and structural modeling. This formulation ensures alignment between the stated research design, the data source, and the analytical procedures reported in the study.

Research Location and Participants

This study was conducted in elementary schools that partner with the Primary School Teacher Education Program (PGSD) at Universitas Katolik Indonesia Santu Paulus Ruteng, located in East Manggarai Regency. The research participants consisted of elementary school teachers who were directly involved in student internship activities. Respondents were selected using purposive sampling, with inclusion criteria based on teachers' direct involvement in academic interaction with student interns during the internship program. This sampling strategy was chosen to ensure that all

respondents had direct experience with the phenomenon under investigation, particularly in relation to instructional collaboration and technology-related practices in elementary education.

A total of 135 teachers were invited to participate in the survey. Of these, 110 questionnaires were returned, resulting in a response rate of 81.5%. Following data screening, two questionnaires were excluded because of incomplete responses. Therefore, the final dataset used for the analysis consisted of 108 valid responses.

Variables and Measurement

The variables examined in this study included academic interaction between student interns and teachers (IA), perceived ease of use (PEOU), perceived usefulness (PU), attitude toward technology (ATT), and behavioral intention to use technology (BI). Academic interaction was conceptualized as a multidimensional construct encompassing communication, collaboration, and knowledge exchange between student interns and teachers during the internship process. The remaining constructs—PEOU, PU, ATT, and BI—were adapted from the Technology Acceptance Model, which explains how individuals perceive, evaluate, and adopt technology in professional practice (Davis, 1989; Venkatesh & Davis, 2000).

In this model, academic interaction was treated as an exogenous contextual variable that may influence teachers' perceptions of technology and, indirectly, their attitudes and intentions to use it. Perceived ease of use and perceived usefulness were modeled as mediating cognitive variables, while attitude toward technology functioned as an attitudinal outcome and behavioral intention represented the final endogenous construct.

Instruments

The primary research instrument was a structured questionnaire employing a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The items measuring perceived ease of use, perceived usefulness, attitude toward technology, and behavioral intention were adapted from the Technology Acceptance Model developed by Davis (1989). These constructs have been widely validated in previous studies on technology acceptance in educational contexts.

The indicators of academic interaction were developed based on the literature concerning academic collaboration and instructional interaction between pre-service teachers and schoolteachers. These indicators included professional communication, sharing of teaching experiences, reflection on classroom practice, and pedagogical support emerging during internship activities. The academic interaction construct was operationalized through three dimensions: communication, collaboration, and knowledge sharing.

Prior to structural analysis, the measurement model was evaluated to ensure that all indicators adequately represented their respective latent constructs. The psychometric assessment focused on factor loadings, Average Variance Extracted (AVE), Composite Reliability (CR), and internal consistency coefficients.

Data Analysis

Data analysis was conducted in several stages. First, descriptive statistical analysis was performed to describe the characteristics of the respondents and the distribution of the research variables. Second, Confirmatory Factor Analysis (CFA) was conducted to evaluate construct validity and reliability in the

measurement model. The criteria used in this study included factor loadings above the recommended minimum threshold, AVE values above 0.50, and CR values above 0.70.

Third, covariance-based Structural Equation Modeling (SEM) was employed to test the structural relationships among the latent variables. SEM was selected because it enables the simultaneous examination of multiple direct and indirect relationships within a theoretically specified model. This approach is particularly appropriate for studies that aim to test explanatory models based on latent constructs rather than isolated bivariate relationships.

Although the final sample size consisted of 108 respondents, the use of SEM in this study was considered acceptable because the structural model was relatively parsimonious, involved a limited number of latent constructs and paths, and the measurement model demonstrated adequately strong factor loadings across indicators, supporting model stability. In SEM, the adequacy of sample size depends not only on the number of observations but also on model complexity, indicator quality, and parameter structure. Therefore, smaller samples may still be defensible when the model is relatively simple, and the measurement properties are satisfactory (Wolf et al., 2013).

Model fit was assessed using several goodness-of-fit indices, including chi-square divided by degrees of freedom (χ^2/df), Comparative Fit Index (CFI), Tucker–Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR). Direct effects were interpreted through standardized path coefficients. Indirect effects were also examined to test the mediating roles of perceived ease of use and perceived usefulness in the relationship between academic interaction and teachers' attitudes toward technology.

3. FINDINGS AND DISCUSSION

Respondent Characteristics

This study involved elementary school teachers from partner schools of the Primary School Teacher Education Program (PGSD) at UNIKA Santu Paulus Ruteng in East Manggarai Regency. A total of 135 teachers were invited to participate in the study. Of these, 110 respondents returned the questionnaires, yielding a response rate of 81.5%. After the data screening process, two questionnaires were excluded because of incomplete responses. Therefore, the final dataset used for the analysis consisted of 108 respondents.

Most respondents were teachers who were directly involved in student internship activities at partner schools. They interacted with student interns in a range of instructional activities, including lesson planning, classroom teaching, and reflection on the use of learning technology in instructional practice.

Descriptive Statistics of Variables

Descriptive statistical analysis was conducted to illustrate the general condition of the research variables. The variables analyzed included academic interaction (IA), perceived ease of use (PEOU), perceived usefulness (PU), attitude toward technology (ATT), and behavioral intention to use technology (BI).

The results indicate that all variables demonstrate relatively high mean scores on the five-point Likert scale. Academic interaction between student interns and teachers shows positive mean values across the dimensions of communication, collaboration, and knowledge sharing. Similarly, perceived ease of use and perceived usefulness of technology also demonstrate favorable mean scores. Teachers' attitudes toward technology and their intention to use technology in teaching and learning activities are likewise categorized as relatively high.

Table 1. Descriptive Statistics of Research Variables

Variable/Construct	Item	Score Range	Mean (M)	SD
IA-Communication	4	1–5	3,82	0,55
IA-Collaboration	4	1–5	3,90	0,52
IA-Knowledge sharing	4	1–5	3,75	0,58
PEOU	4	1–5	3,72	0,56
PU	4	1–5	3,95	0,49
ATT	4	1–5	3,88	0,51
BI	3	1–5	3,80	0,57

Measurement Model: Confirmatory Factor Analysis (CFA)

Confirmatory Factor Analysis (CFA) was conducted to examine the validity and reliability of the constructs in the measurement model. The results indicate that all constructs met the recommended psychometric criteria. Factor loadings were within acceptable ranges, Average Variance Extracted (AVE) values exceeded 0.50, and Composite Reliability (CR) values were above 0.70 for all constructs.

Table 2. CFA Analysis

Construct	Loading range	AVE	CR	Decision
IA	0,70–0,88	0,60	0,91	Valid
PEOU	0,68–0,86	0,57	0,87	Valid
PU	0,72–0,90	0,63	0,89	Valid
ATT	0,71–0,89	0,62	0,90	Valid
BI	0,69–0,87	0,59	0,85	Valid

These findings indicate that the measurement model demonstrates satisfactory convergent validity and construct reliability. Therefore, the indicators used in this study adequately represented their respective latent constructs.

Structural Model (SEM)

Structural Equation Modeling (SEM) analysis was conducted to examine the structural relationships among variables in the research model. The results indicate that the model demonstrates an acceptable level of goodness-of-fit.

Table 3. Structural Equation Modeling (SEM)

Index	Value
χ^2/df	1,95
CFI	0,97
TLI	0,96
RMSEA	0,05
SRMR	0,04

The path analysis results indicate that academic interaction has a positive and significant effect on perceived ease of use (IA → PEOU) and perceived usefulness (IA → PU). Furthermore, perceived ease of use positively influences perceived usefulness (PEOU → PU) and teachers' attitudes toward technology (PEOU → ATT). Perceived usefulness also shows a strong positive influence on teachers'

attitudes toward technology (PU → ATT). In addition, attitude toward technology significantly affects teachers' behavioral intention to use technology in the teaching and learning process (ATT → BI).

Table 4. Path Analysis Results

Path	β	SE	CR/t	p
IA → PEOU	0,58	0,07	8,29	<0,001
IA → PU	0,34	0,08	4,25	<0,001
PEOU → PU	0,46	0,07	6,43	<0,001
PEOU → ATT	0,20	0,08	2,50	0,012
PU → ATT	0,62	0,07	8,86	<0,001
ATT → BI	0,70	0,06	11,67	<0,001

Mediation Analysis

Mediation analysis was conducted to examine the indirect effects of academic interaction on teachers' attitudes toward technology through perceived ease of use and perceived usefulness. The results show that both perceived ease of use and perceived usefulness function as significant mediating variables in the relationship between academic interaction and teachers' attitudes toward technology. The indirect path through perceived ease of use (IA → PEOU → ATT) produced a positive and significant effect. Likewise, the indirect path through perceived usefulness (IA → PU → ATT) also showed a positive and statistically significant effect.

Table 5. Indirect Effects of Academic Interaction on Attitude toward Technology

Indirect Path	Indirect Effect	SE	z/Sobel	p	Decision
IA → PEOU → ATT	0.116	0.048	2.39	0.017	Significant
IA → PU → ATT	0.211	0.055	3.83	<0.001	Significant

Discussion

The findings of this study indicate that academic interaction between student interns and teachers plays a significant role in enhancing elementary school teachers' acceptance of learning technology. The Structural Equation Modeling results show that academic interaction has a positive and significant effect on perceived ease of use ($\beta = 0.58$; $p < 0.001$) and perceived usefulness of technology ($\beta = 0.34$; $p < 0.001$). These findings are consistent with the Technology Acceptance Model (TAM), which posits that perceived ease of use and perceived usefulness are key determinants influencing individuals' attitudes toward technology and their intention to use it (Davis, 1989; Venkatesh & Davis, 2000). Previous studies have also demonstrated that TAM is widely used to explain technology adoption behavior in educational contexts and effectively explains how teachers develop attitudes toward the use of digital technologies in teaching and learning processes (Scherer et al., 2019).

In the context of this study, academic interaction functions as a contextual learning mechanism that enables teachers to gain direct experience in using learning technologies. This is reflected in the significant relationship between perceived ease of use and perceived usefulness ($\beta = 0.46$; $p < 0.001$), indicating that the easier a technology is perceived to be, the greater the perceived benefits among teachers. More importantly, the mediation analysis confirms that academic interaction influences teachers' attitudes toward technology indirectly through perceived ease of use and perceived usefulness. The indirect effect through perceived ease of use was significant ($\beta = 0.116$; $p = 0.017$), while the indirect effect through perceived usefulness was even stronger ($\beta = 0.211$; $p < 0.001$). These results suggest that academic interaction does not merely expose teachers to digital tools but also shapes the

cognitive processes through which teachers judge whether technology is manageable and pedagogically valuable.

The findings further indicate that academic interaction creates a learning-by-doing process in which teachers develop familiarity with technology while engaging in actual classroom practice. Through collaboration, communication, and knowledge exchange with student interns, teachers do not only receive information about technology use in abstract terms; they learn by observing demonstrations, trying out tools in real instructional situations, discussing practical constraints, and reflecting on their classroom experiences. This situated process is important because teachers' acceptance of technology is often strengthened when they can directly connect digital tools to everyday teaching needs. In this sense, academic interaction provides an authentic professional learning space in which teachers' perceptions of technology are shaped through practice rather than through formal training alone. This pattern is consistent with collaborative and peer-mediated learning, in which knowledge develops through demonstration, experimentation, problem-solving, and reflection on authentic tasks (De Jong et al., 2022; Dewanto et al., 2025; Jamun et al., 2023; Rosyidah et al., 2025).

The findings also suggest that student interns can function as informal change agents who help introduce technological innovations within the school environment. The structural model analysis indicates that perceived usefulness has a strong influence on teachers' attitudes toward technology ($\beta = 0.62$; $p < 0.001$), suggesting that teachers are more likely to develop positive attitudes toward technology when they perceive clear benefits from its use. The presence of student interns, who are generally more familiar with digital technologies and more recently exposed to contemporary pedagogical approaches, may help teachers overcome both technical and psychological barriers associated with technology use. In this context, student interns contribute not only as assistants in instructional activities but also as catalysts who bring updated digital literacy directly into classroom practice. Previous studies have highlighted that social interaction and support from the professional environment play an important role in accelerating teachers' technology adoption processes (McGill & Klobas, 2009; Pappa et al., 2024).

Another important implication of the findings is the presence of a reverse-mentoring dynamic in the relationship between teachers and student interns. While teachers possess extensive classroom experience, pedagogical judgment, and contextual understanding of students' needs, student interns often bring newer forms of digital knowledge and greater confidence in experimenting with emerging technologies. The interaction between these two groups creates a reciprocal professional learning process in which knowledge flows in both directions. Teachers mentor student interns in classroom management and pedagogical adaptation, while student interns informally mentor teachers in the practical use of digital tools. This reciprocal exchange strengthens the argument that academic interaction should be understood not simply as a background feature of internship programs, but as a meaningful social mechanism that supports technology acceptance through intergenerational professional learning. Previous research suggests that partnerships between pre-service and in-service teachers can facilitate reciprocal and intergenerational learning. Nevertheless, reverse mentoring should be understood as one form of collaborative professional learning rather than as an inherently superior intervention (Batista et al., 2024; Bertram et al., 2023; Widari & Jazadi, 2025).

From the perspective of elementary education, these findings provide important implications for the development of student internship programs. Internship programs do not only serve as learning opportunities for pre-service teachers but can also function as an effective strategy for strengthening teachers' digital competence. This implication is especially important in educational settings where access to formal government-supported technology training may be limited or unevenly distributed. In such contexts, informal academic interaction between teachers and student interns may serve as an alternative form of professional support that helps schools respond to digital transformation through

everyday collaborative practice. Other studies have similarly emphasized that the development of teachers' digital competence is a key factor in supporting educational transformation in the digital era and improving the quality of learning in elementary schools (Joya et al., 2025; Revuelta-Domínguez et al., 2022).

Furthermore, the findings are consistent with previous studies emphasizing the importance of social experience, professional collaboration, and supportive learning environments in improving teachers' readiness to adopt learning technologies. In the research model, attitude toward technology is shown to have a very strong influence on teachers' behavioral intention to use technology in teaching ($\beta = 0.70$; $p < 0.001$). This finding confirms that positive attitudes remain a central pathway through which technology-related perceptions are translated into behavioral intention. Academic interaction between student interns and teachers can therefore be understood as a socially embedded mechanism that strengthens perceived ease of use and perceived usefulness, ultimately fostering more positive attitudes and stronger intentions to adopt technology in classroom learning (Pappa et al., 2024; Scherer et al., 2019; Triwahyuni et al., 2025).

4. CONCLUSION

This study examined the influence of academic interaction between student interns and elementary school teachers on teachers' attitudes toward the adoption of learning technology through the Technology Acceptance Model (TAM). The findings show that academic interaction has a positive and significant effect on perceived ease of use and perceived usefulness, which subsequently shape teachers' attitudes toward technology and strengthen their behavioral intention to use it in instructional practice. These results confirm that technology acceptance in elementary schools is not only determined by individual perceptions, but is also shaped by social and professional interaction in authentic classroom contexts.

In particular, academic interaction enables teachers to engage in a learning-by-doing process through communication, collaboration, reflection, and shared experimentation with student interns. This process allows teachers to become more familiar with the practical use of technology in classroom instruction while simultaneously strengthening their confidence in adopting digital tools. The findings therefore show that academic interaction can function as an effective contextual learning mechanism that supports technology adoption in elementary school environments.

From a theoretical perspective, this study contributes to educational technology adoption research by positioning academic interaction as a socially embedded and contextually meaningful factor within teachers' technology acceptance processes. The study further highlights the role of student interns as informal change agents who bring updated digital literacy into schools and create reciprocal professional learning opportunities through reverse mentoring.

From a practical perspective, the findings suggest that internship programs should be designed not only as training spaces for pre-service teachers but also as collaborative professional development opportunities for in-service teachers. At a broader level, these findings also carry important implications for the scientific development of teacher education and for curriculum policy in higher education institutions, particularly Lembaga Pendidikan Tenaga Kependidikan (LPTK). The results suggest that internship programs should no longer be viewed merely as field placement components designed to train pre-service teachers, but as reciprocal professional learning spaces that connect teacher preparation with school-based digital transformation. These findings also have implications for teacher education policy. Accordingly, LPTK curricula should strengthen collaborative practicum,

digital competence, and structured intergenerational learning as integrated components of teacher preparation (Mubarok et al., 2025; Sihanita et al., 2024).

This implies that LPTK curriculum policies need to place stronger emphasis on structured academic interaction, collaborative reflection, and technology-integrated practicum experiences as core components of teacher education. Consequently, LPTK curricula may need to redefine practicum design, supervision models, and partnership frameworks with schools so that internship activities function as channels for intergenerational knowledge transfer, professional collaboration, and the diffusion of educational technology in elementary education.

Nevertheless, this study was limited to partner elementary schools in East Manggarai Regency. Future studies are therefore encouraged to involve broader contexts and to examine additional variables that may further explain teachers' adoption of learning technology.

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