

Key Influencers Boosting ICT Adoption and E-Leadership Among Thai Educators in Higher Education

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Abstract

This study investigates the key influencers boosting Information and Communication Technology (ICT) adoption and e-leadership among Thai educators in higher education. Specifically, it examines the impact of active awareness of ICT, quality of ICT evaluation, willingness to expend effort, facilitating conditions, and personal innovativeness on the intention to use ICT and e-leadership. The research focuses on educators from private universities in Thailand, targeting a sample size of 488, given their critical role in integrating ICT and e-leadership practices into the educational framework. A quantitative methodology was employed, involving the distribution of surveys to gather data. Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) were used for data analysis. The results indicate that willingness to expend effort, facilitating conditions, and personal innovativeness were found to significantly influence the intention to use ICT. Additionally, facilitating conditions and personal innovativeness had a significant impact on e-leadership, and the intention to use ICT significantly influenced e-leadership. Conversely, active awareness of ICT and the quality of ICT evaluation were not found to significantly impact the intention to use ICT. These findings provide valuable insights into the factors driving ICT adoption and e-leadership among Thai educators in higher education.

Keywords: Information and Communication Technology (ICT), E-Leadership, Facilitating Conditions, Personal Innovativeness, Intention to Use.

INTRODUCTION

Background of ICT in Thailand

In recent years, Thailand has witnessed substantial growth in Information and Communication Technology (ICT) infrastructure and usage. The Thai government has actively promoted ICT as a key driver for economic and social development, recognizing its potential to enhance education, healthcare, and business sectors. The "Thailand 4.0" initiative is a prime example, aiming to transform the country into a high-income nation by leveraging technology and innovation (Chundasutathanakul, 2021). In the education sector, ICT integration has become a crucial element in improving teaching and learning processes, providing students and educators with access to vast resources and innovative learning methods (Dipendra, 2023).

Rationale for the Study

Despite the government's efforts and the evident benefits of ICT, its adoption in higher education remains inconsistent. Various factors influence the integration of ICT, including the educators' attitudes, infrastructural support, and personal innovativeness (Teo, 2011). Understanding these factors is essential for developing effective strategies to enhance ICT usage and e-leadership among educators. This study aims to fill the gap by identifying the key influencers that drive ICT adoption and e-leadership practices among Thai educators in private universities. Given their pivotal role in shaping the educational framework, educators' acceptance and effective use of ICT can significantly impact the overall quality of education.

Objectives of the Study

The primary objectives of this study are:

To investigate the impact of active awareness of ICT on the intention to use ICT.

To assess the influence of the quality of ICT evaluation on the intention to use ICT.

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To examine the effect of willingness to expend effort on the intention to use ICT.

To evaluate the role of facilitating conditions in the intention to use ICT and e-leadership.

To analyze the impact of personal innovativeness on the intention to use ICT and e-leadership.

To determine the influence of intention to use ICT on e-leadership among educators.

METHODOLOGY

This study employs a quantitative methodology, utilizing surveys to collect data from 488 educators in private universities across Thailand. These educators are strategically selected due to their critical role in integrating ICT and e-leadership practices into the educational framework. Data analysis is conducted using Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) to test the proposed hypotheses.

Significance of the Study

The findings from this study are expected to provide valuable insights into the factors that influence ICT adoption and e-leadership among educators in higher education. By identifying the key drivers, educational policymakers and university administrators can develop targeted interventions to enhance ICT usage and e-leadership capabilities. This, in turn, can lead to more effective teaching and learning processes, aligning with Thailand's broader goals of educational excellence and innovation (Ministry of Education, Thailand, 2018). Moreover, understanding the barriers to ICT adoption can help in designing support mechanisms to overcome these challenges, ensuring that educators are well-equipped to harness the benefits of ICT in their professional practice.

LITERATURE REVIEW

Active Awareness of ICT

Active awareness involves the recognition and understanding of the potential benefits, functionalities, and applications of ICT in improving educational outcomes Van Wart et al. (2017). This concept is crucial as it shapes educators' attitudes and intentions toward integrating technology into their teaching practices (Teo, 2011). Active awareness of ICT entails being informed about the latest technological advancements, understanding how these technologies can be leveraged to enhance educational practices, and recognizing the benefits they offer in terms of efficiency, effectiveness, and engagement (Liu et al., 2018). As educators become more familiar with the capabilities and advantages of ICT, their perceived usefulness increases, which in turn positively impacts their intention to use these technologies (Venkatesh & Davis, 2000). Thus, the hypothesis is stated:

H1: Active awareness of ICT has a significant impact on intention to use ICT

Quality of ICT Evaluation

High-quality evaluation of ICT tools involves a thorough assessment of their usability, functionality, and effectiveness in enhancing educational outcomes (Bennett & Bennett, 2003). This process ensures that the selected technologies meet the specific needs of educators and students, thereby fostering a positive attitude toward their adoption (Van Wart et al., 2017). Quality ICT evaluation encompasses several dimensions, including technical performance, user satisfaction, and pedagogical value (Idkhan & Idris, 2023). Educators who engage in comprehensive evaluations are better equipped to identify ICT tools that are reliable, user-friendly, and effective in supporting teaching and learning processes (Alkamel, 2018). Such evaluations not only provide educators with confidence in the technology but also highlight its potential benefits, making them more likely to adopt it (Liu et al., 2018). Therefore, this study proposes a hypothesis:

H2: Quality of ICT evaluation has a significant impact on intention to use ICT.

Willingness to Expend Effort

Educators' intention to use ICT is significantly influenced by their willingness to invest the necessary effort to overcome the initial learning curve associated with new technologies (Vandeyar & Adegoke, 2024). A study by

Ghavifekr and Rosdy (2015) on the effectiveness of ICT integration in schools found that educators who were willing to expend effort to learn about ICT tools and integrate them into their teaching practices demonstrated a higher intention to use these technologies. Educators who are intrinsically motivated to enhance their teaching through ICT are more likely to dedicate the necessary effort to learn and use these technologies (Deci & Ryan, 2000). Institutions that recognize and address the challenges associated with technology adoption can create a culture that values and supports continuous learning and innovation (Bennett & Bennett, 2003). Therefore, the hypothesis is well-supported by the literature:

H3: Willingness to expend effort has a significant impact on intention to use ICT.

Facilitating Conditions

According to Gupta et al. (2023), facilitating conditions refer to the external factors and resources that support the effective use of Information and Communication Technology (ICT). These include access to technological infrastructure, availability of technical support, and the provision of training and resources. Facilitating conditions are critical in determining an individual's intention to use ICT, as they can significantly impact the ease with which technology can be adopted and integrated into daily practices (Venkatesh et al., 2003). Ghavifekr and Rosdy (2015) found that effective ICT integration in schools is heavily dependent on the availability of necessary resources and support systems.

Educators who have access to adequate technical support and training are more likely to adopt and utilize ICT tools in their teaching practices. This finding underscores the importance of providing adequate facilitating conditions to encourage technology adoption (Venkatesh & Davis, 2000). Effective e-leadership is contingent upon the availability of facilitating conditions that support digital communication, collaboration, and management (Van Wart et al., 2017a). The impact of facilitating conditions on e-leadership is further supported by Liu et al. (2018), who found that organizational leaders' ability to effectively adopt and use virtual communication technologies was significantly influenced by the facilitating conditions available to them. Hence, below hypotheses are developed:

H4: Facilitating conditions has a significant impact on intention to use ICT.

H5: Facilitating conditions have a significant impact on e-leadership.

Personal Innovativeness

Personal innovativeness refers to an individual's willingness to try out new technologies and innovations (Dutta et al., 2015). It is a key factor influencing the intention to use Information and Communication Technology (ICT) in educational settings. Individuals who are more innovative are generally more open to adopting new technologies and integrating them into their practices (Agarwal & Prasad, 1998). Alkamel (2018) investigated the use of ICT tools in language teaching found that educators with higher levels of personal innovativeness were more likely to adopt and effectively use ICT in their teaching practices. This finding highlights the role of personal innovativeness in driving technology adoption. Gupta et al. (2023) found that e-leaders who were more innovative in their approach to virtual communication and digital tools demonstrated higher levels of effectiveness in managing their teams.

The relationship between personal innovativeness and e-leadership is also supported by the findings of Vandeyar and Adegoke (2024), who emphasized that personal innovativeness among teachers enhances their ability to integrate ICT into their pedagogical practices. Personal innovativeness facilitates e-leadership by enabling leaders to adapt to and leverage new technologies (Pinho et al., 2021). Innovative leaders are better equipped to navigate the complexities of digital communication and collaboration, leading to more effective and dynamic leadership in virtual settings (Van Wart et al., 2017). Consequently, this research suggests hypotheses as follows:

H6: Personal innovativeness has a significant impact on intention to use ICT.

H7: Personal innovativeness has a significant impact on e-leadership.

Intention to Use ICT

Intention to use Information and Communication Technology (ICT) refers to an individual's planned commitment to adopt and utilize technology for various purposes (Liu et al., 2018). This intention is often driven by perceived usefulness, ease of use, and personal innovativeness, which shape how and to what extent individuals are willing to integrate technology into their practices (Davis, 1989; Venkatesh et al., 2003). In the context of educational settings, the intention to use ICT can significantly influence how effectively technology is incorporated into teaching and administrative processes (Mirzajani et al., 2016). The relationship between intention to use ICT and e-leadership is also supported by empirical evidence indicating that leaders' proactive engagement with technology leads to better performance in managing remote and virtual teams (Alkhayyal & Bajaba, 2023). Leaders who are committed to using ICT tools tend to be more adept at leveraging these technologies for strategic planning, communication, and decision-making (Vandeyar & Adegoke, 2024). Accordingly, a hypothesis is summarized:

H8: Intention to use ICT has a significant impact on e-leadership.

E-Leadership

E-leadership, or electronic leadership, refers to the practice of leading and managing teams through digital means, such as online platforms and communication technologies (Gupta et al., 2023). This form of leadership involves leveraging digital tools to facilitate communication, collaboration, and decision-making in virtual environments (Van Wart et al., 2017). E-leadership has become increasingly relevant as organizations and educational institutions adopt digital technologies to manage remote teams and digital initiatives (Avolio et al., 2000). Liu et al. (2018) found that leaders who actively adopt and use digital communication tools are more effective in managing their teams and facilitating collaboration in virtual environments. Leaders who are committed to using ICT, exhibit high levels of personal innovativeness, and have access to supportive resources are more likely to excel in digital leadership roles (Hargitai & Bencsik, 2023).

Conceptual Framework

The research framework is informed by key studies on e-leadership and virtual communication adoption. Gupta et al. (2023) emphasizes factors like e-leadership competencies, virtual communication tools, and perceived ease of use as critical for educators' ICT adoption, using the UTAUT3 model. Similarly, Liu et al. (2018) identify perceived usefulness, ease of use, and organizational support as vital for organizational leaders' virtual communication adoption. These studies collectively highlight the significance of both individual and organizational factors in effective e-leadership and ICT utilization, as illustrated in Figure 1.

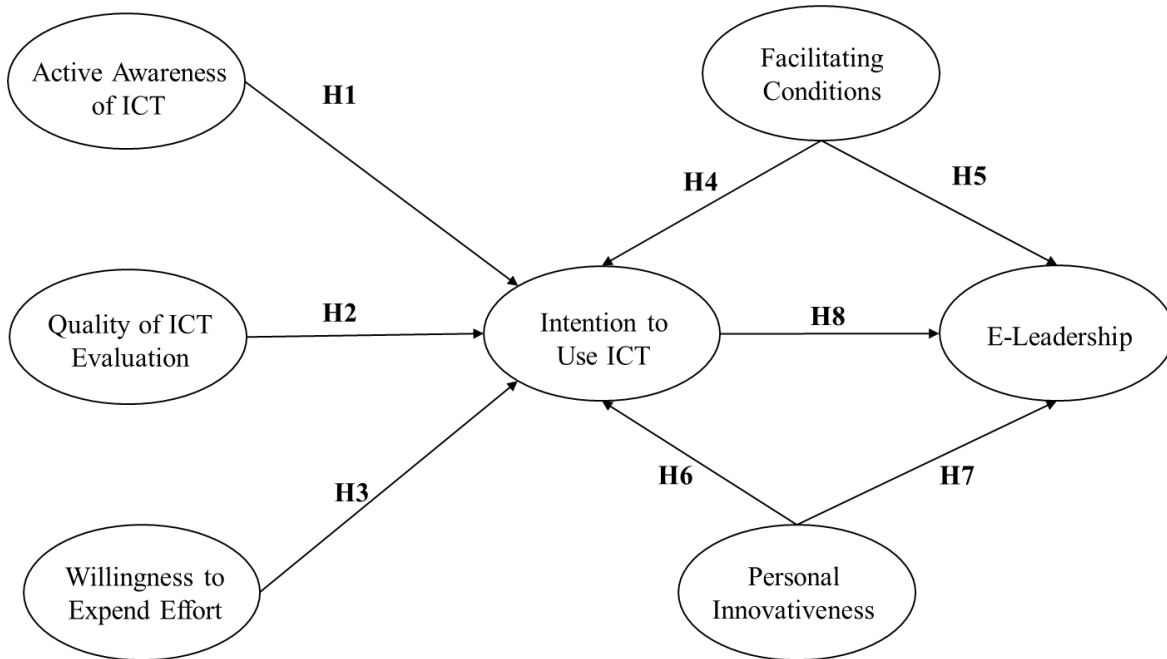


Figure 1. Conceptual Framework

Source: Created by Author.

METHODOLOGY

Research Design

The research design is quantitative, involving a survey distributed to educators from private universities in Thailand, targeting a sample size of 488. The survey comprises three sections: screening questions, items rated on a five-point Likert scale from "strongly disagree" (1) to "strongly agree" (5), and demographic information including gender, educational background, teaching experience, and academic title. The questionnaire focuses on key influencers such as active awareness of ICT, quality of ICT evaluation, willingness to expend effort, facilitating conditions, and personal innovativeness, and their impact on the intention to use ICT and e-leadership. The Item–Objective Congruence (IOC) index was utilized, evaluated by experts, with items scoring 0.5 or higher. Reliability was tested using Cronbach’s Alpha, achieving values above 0.70 in a pilot study with 50 participants (Nunnally, 1978). Data analysis involved Confirmatory Factor Analysis (CFA) for assessing reliability, validity, and model fit, and Structural Equation Modeling (SEM) for hypothesis testing.

Population and Sample Size

The target population for this study consists of educators from private universities in Thailand, chosen for their critical role in integrating Information and Communication Technology (ICT) and e-leadership practices into the educational framework. These institutions were selected due to their unique challenges and opportunities compared to public universities, making their experiences particularly relevant for studying ICT adoption and e-leadership. The goal is to gain insights into how these educators utilize and perceive ICT and e-leadership, which can inform improvements in educational practices and policies. A sample size of 300 to 500 is often suggested for more complex models to ensure adequate power and stability (Hoyle, 2012). A sample size of 488 educators is targeted to ensure a comprehensive dataset that accurately reflects the experiences of this population. The survey was distributed over a specified period to capture a wide range of responses, with the final dataset expected to provide robust and generalizable findings.

Sampling Technique

Judgmental sampling, also known as purposive sampling, is a non-probability sampling method where the researcher selects participants based on specific criteria and their expertise or relevance to the study (Saunders et al., 2019). In the context of this study, which aims to explore the adoption of Information and Communication Technology (ICT) and e-leadership among educators in private universities in Thailand, judgmental sampling is employed to ensure the selection of individuals who are particularly knowledgeable and involved in these areas.

RESULTS AND DISCUSSION

Demographic Profile

In Table 1, the demographic profile of the 488 participants reveals a diverse group of educators from private universities in Thailand. Of the respondents, 36.8% identified as male, 55.3% as female, and 7.8% preferred not to disclose their gender. Regarding education levels, 28.7% held a Bachelor's degree, 47.6% had a Master's degree, 19.5% possessed a Doctorate, and 4.3% reported other qualifications. In terms of teaching experience, 8.2% had less than 1 year, 30.7% had 1-5 years, 24.5% had 6-10 years, 18.5% had 11-15 years, 12.3% had 16-20 years, and 5.7% had more than 20 years. For current positions, 22.5% were Lecturers, 28.7% were Assistant Professors, 24.5% were Associate Professors, 17.4% were Professors, and 6.8% held other titles. This distribution highlights the broad spectrum of academic experience and roles among the participants.

Table 1: Demographic Results of Participants (n=488)

Demographic Variable (n=488)	Category	Frequency	Percentage (%)
Gender	Male	180	36.8
	Female	270	55.3
	Prefer not to say	38	7.8
Education Level	Bachelor's degree	140	28.7
	Master's degree	232	47.6
	Doctorate (PhD, EdD, etc.)	95	19.5
	Other	21	4.3
Years of Teaching Experience	Less than 1 year	40	8.2
	1-5 years	150	30.7
	6-10 years	120	24.5
	11-15 years	90	18.5
	16-20 years	60	12.3
Position/Title	More than 20 years	28	5.7
	Lecturer	110	22.5
	Assistant Professor	140	28.7
	Associate Professor	120	24.5
	Professor	85	17.4
	Other	33	6.8

Source: Created by Author.

Confirmatory Factor Analysis (CFA)

Table 2 presents the results of the Confirmatory Factor Analysis (CFA) for various constructs used in the study, evaluated with a sample size of 488 participants. The Cronbach's alpha values indicate high internal consistency across all variables, with scores ranging from 0.840 to 0.920 (Nunnally, 1978). Factor loadings for the constructs vary between 0.739 and 0.927, demonstrating satisfactory convergent validity (Hair et al., 2019). Composite Reliability (CR) values exceed 0.800 for all constructs, reflecting strong reliability, while Average Variance Extracted (AVE) values range from 0.620 to 0.794, confirming acceptable levels of construct validity (Fornell & Larcker, 1981). Specifically, "Willingness to Expend Effort" and "E-Leadership" exhibit the highest reliability and validity scores, underscoring their robustness in measuring the intended constructs.

Table 2: Confirmatory Factor Analysis Result, Composite Reliability (CR) and Average Variance Extracted (AVE)

Variables	Source of Questionnaire	No. of Items	Cronbach's (n=488)	Factors Loading	CR	AVE
Active Awareness of ICT (AAI)	Liu et al. (2018)	3	0.856	0.795-0.843	0.857	0.666
Quality of ICT Evaluation (QIE)	Liu et al. (2018)	3	0.840	0.774-0.818	0.841	0.638
Willingness to Expend Effort (WEE)	Liu et al. (2018)	4	0.920	0.836-0.874	0.920	0.742
Facilitating Conditions (FC)	Gupta et al. (2023)	5	0.887	0.739-0.855	0.890	0.620
Personal Innovativeness (PI)	Gupta et al. (2023)	3	0.890	0.826-0.881	0.891	0.732
Intention to Use ICT (ICT)	Liu et al. (2018)	3	0.899	0.846-0.891	0.900	0.749
E-Leadership (EL)	Liu et al. (2018)	3	0.920	0.848-0.927	0.920	0.794

The results of the discriminant validity analysis in Table 3 demonstrate that the constructs in the study exhibit satisfactory levels of discriminant validity. The Average Variance Extracted (AVE) square roots, represented along the diagonal, range from 0.799 to 0.891, indicating that each construct accounts for more variance in its indicators than any variance shared with other constructs (Fornell & Larcker, 1981). The off-diagonal correlations between constructs are lower than the corresponding AVE square root values, confirming that the constructs are distinct from each other. Specifically, the constructs "Intention to Use ICT" (ICT), "Active Awareness of ICT" (AAI), "Facilitating Conditions" (FC), "Personal Innovativeness" (PI), "E-Leadership" (EL), "Quality of ICT Evaluation" (QIE), and "Willingness to Expend Effort" (WEE) show clear separation in their measurement properties, thereby supporting the validity of the theoretical model used in the study.

Table 3: Discriminant Validity

	ICT	AAI	FC	PI	EL	QIE	WEE
ICT	0.866						
AAI	0.387	0.816					
FC	0.553	0.441	0.787				
PI	0.486	0.480	0.525	0.856			
EL	0.562	0.591	0.499	0.554	0.891		
QIE	0.364	0.351	0.381	0.381	0.391	0.799	
WEE	0.459	0.427	0.424	0.437	0.555	0.455	0.861

Note: The diagonally listed value is the AVE square roots of the variables

The results presented in Table 4 indicate that both the measurement and structural models exhibit acceptable goodness-of-fit. For the measurement model, the CMIN/DF ratio is 2.134, below the recommended threshold of 5.00, suggesting a good fit. The goodness-of-fit indices (GFI = 0.925, AGFI = 0.902, NFI = 0.941, CFI = 0.967, TLI = 0.961) all exceed the acceptable values, while the RMSEA of 0.048 is well below the threshold of 0.08, indicating a close fit. The structural model also demonstrates acceptable fit, with a CMIN/DF ratio of 3.756, GFI = 0.870, AGFI = 0.838, NFI = 0.891, CFI = 0.917, TLI = 0.905, and an RMSEA of 0.075, all within acceptable ranges. These results confirm that both models are well-specified and support the validity of the theoretical framework used in the study.

Table 4: Goodness of Fit for Measurement and Structural Models

Index	Acceptable Values	Statistical Values	
		Measurement Model	Structural Model
CMIN/DF	≤ 5.00 (Marsh et al., 2004)	492.958/231 = 2.134	905.276/241 = 3.756
GFI	≥ 0.80 (Al-Mamary & Shamsuddin, 2015)	0.925	0.870
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.902	0.838
NFI	≥ 0.80 (Wu & Wang, 2006)	0.941	0.891

Index	Acceptable Values	Statistical Values	
		Measurement Model	Structural Model
CFI	≥ 0.80 (Bentler, 1990)	0.967	0.917
TLI	≥ 0.80 (Sharma et al., 2005)	0.961	0.905
RMSEA	< 0.08 (Pedroso et al., 2016)	0.048	0.075
Model summary		Acceptable Model Fit	Acceptable Model Fit

Remark: CMIN/DF = The ratio of the chi-square value to degree of freedom, GFI = goodness-of-fit index, AGFI = adjusted goodness-of-fit index, NFI = normalized fit index, CFI = comparative fit index, TLI = Tucker-Lewis index, and RMSEA = root mean square error of approximation

Research Hypothesis Testing Result

The study evaluated eight hypotheses to understand the factors influencing ICT adoption and e-leadership among educators. The results of the structural model, including standardized path coefficients (β), standard errors (S.E.), and t-values, are summarized in Table 5 and Figure 2.

Table 5: Hypothesis Result of the Structural Model

Hypotheses	Paths	Standardized Path Coefficients (β)	S.E.	T-Value	Tests Result
H1	ICT<---AAI	0.090	0.047	1.680	Not Supported
H2	ICT<---QIE	0.083	0.058	1.509	Not Supported
H3	ICT<---WEE	0.228	0.050	4.125*	Supported
H4	ICT<---FC	0.350	0.043	7.517*	Supported
H5	EL<---FC	0.172	0.044	3.730*	Supported
H6	ICT<---PI	0.207	0.045	4.528*	Supported
H7	EL<---PI	0.324	0.046	7.180*	Supported
H8	EL<---ICT	0.348	0.051	7.132*	Supported

Remark: * $p < 0.05$

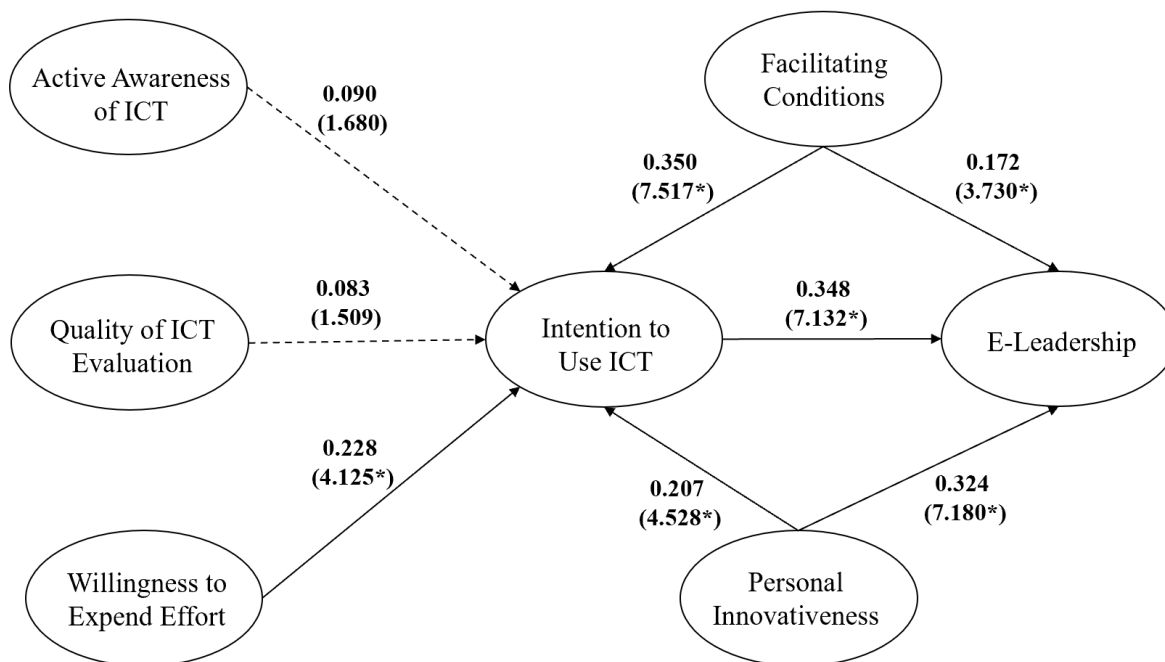


Figure 2. The Results of Structural Model

Remark: Dashed lines, not significant; solid lines, significant. * $p < 0.05$

Source: Created by Author.

Hypothesis 1 examined whether active awareness of ICT significantly impacts the intention to use ICT. The analysis revealed a standardized path coefficient of 0.090 and a t-value of 1.680, which did not meet the threshold for statistical significance. This result suggests that while awareness of ICT is a relevant factor, it does not have a significant direct effect on educators' intention to use ICT. The findings imply that additional factors or mechanisms may be required to translate awareness into actionable intentions.

Hypothesis 2 explored the influence of the quality of ICT evaluation on the intention to use ICT. This hypothesis was also not supported, with a path coefficient of 0.083 and a t-value of 1.509, both of which fell short of conventional significance levels. This indicates that the quality of ICT evaluation does not significantly impact educators' intention to adopt ICT, suggesting that other determinants might play a more crucial role.

In contrast, **Hypothesis 3** and **Hypothesis 4** were supported. **Hypothesis 3** proposed that willingness to expend effort has a significant impact on the intention to use ICT. The path coefficient of 0.228 and a t-value of 4.125 were statistically significant, demonstrating that educators who are more willing to invest effort are more likely to intend to use ICT. This finding highlights the importance of effort and motivation in technology adoption.

Hypothesis 4 investigated whether facilitating conditions significantly influence the intention to use ICT. This hypothesis was supported with a path coefficient of 0.350 and a t-value of 7.517, indicating that supportive conditions greatly enhance educators' intention to use ICT. The significant relationship underscores the necessity of providing adequate resources and support to facilitate technology adoption.

Hypothesis 5 examined the impact of facilitating conditions on e-leadership. The path coefficient was 0.172 with a t-value of 3.730, supporting the hypothesis. This result suggests that favorable facilitating conditions positively influence educators' e-leadership abilities, indicating that a supportive environment enhances digital leadership skills.

Hypothesis 6 proposed that personal innovativeness impacts the intention to use ICT. The path coefficient of 0.207 and a t-value of 4.528 confirmed this hypothesis, showing that educators who are more innovative are more likely to intend to use ICT. Personal innovativeness, therefore, plays a significant role in driving technology adoption.

Similarly, **Hypothesis 7** explored whether personal innovativeness affects e-leadership. The results, with a path coefficient of 0.324 and a t-value of 7.180, supported this hypothesis. This indicates that innovative educators are more likely to exhibit strong e-leadership skills, highlighting the connection between personal traits and leadership in digital contexts.

Lastly, **Hypothesis 8** examined whether the intention to use ICT impacts e-leadership. With a path coefficient of 0.348 and a t-value of 7.132, this hypothesis was supported, demonstrating a significant positive effect. Educators who intend to use ICT are also more likely to demonstrate effective e-leadership, suggesting that technology adoption directly influences digital leadership capabilities.

In summary, the results indicate that factors such as willingness to expend effort, facilitating conditions, and personal innovativeness significantly impact both the intention to use ICT and e-leadership. While active awareness of ICT and the quality of ICT evaluation were not significant predictors, the findings underscore the importance of effort, support, and individual traits in fostering ICT adoption and e-leadership among educators.

DISCUSSION

The results of this study provide valuable insights into the factors influencing ICT adoption and e-leadership among educators. Hypotheses 3 and 4 were supported, revealing that willingness to expend effort and facilitating conditions significantly impact the intention to use ICT. These findings align with existing literature that highlights the importance of motivation and support in technology adoption (Venkatesh et al., 2012). The positive impact of facilitating conditions emphasizes the necessity for a supportive environment to enhance educators' technology use. Conversely, Hypotheses 1 and 2, which explored the effects of active awareness of

ICT and the quality of ICT evaluation, were not supported. This suggests that simply being aware of ICT or evaluating its quality does not directly translate into a higher intention to use ICT.

Hypotheses 6 and 7 indicated that personal innovativeness significantly influences both the intention to use ICT and e-leadership. This aligns with prior research showing that individuals who are more open to new technologies are more likely to adopt them and exhibit leadership in digital environments (Dutta et al., 2015). Additionally, Hypothesis 8 was supported, showing that the intention to use ICT positively affects e-leadership. This result underscores the role of technology adoption in enhancing digital leadership capabilities, reinforcing the connection between technological engagement and leadership performance.

Implications for Theory

The study's findings contribute to the theoretical understanding of ICT adoption and e-leadership by emphasizing the role of willingness to expend effort, facilitating conditions, and personal innovativeness. The lack of support for the hypotheses related to active awareness and quality of ICT evaluation suggests that theoretical models should incorporate additional factors or mechanisms to better understand the nuances of technology adoption. The results reinforce the relevance of constructs from the Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT) in explaining technology adoption among educators (Davis, 1989; Venkatesh et al., 2003).

Implications for Practice

For practitioners, the study highlights several key factors that can facilitate ICT adoption and enhance e-leadership among educators. Providing a supportive environment and resources (facilitating conditions) is crucial for increasing the intention to use ICT. Institutions should focus on reducing barriers to technology use and offering adequate support to foster a conducive environment for technology adoption. Additionally, promoting personal innovativeness among educators can drive both ICT usage and e-leadership. Professional development programs should encourage innovation and adaptability to harness the full potential of ICT in education.

Limitations and Future Studies

This study has several limitations. First, it focused solely on private universities in Thailand, which may limit the generalizability of the findings to other educational contexts or regions. Future research could extend the study to include public universities or other geographical locations to validate and generalize the results. Additionally, the study employed a cross-sectional design, which does not capture changes over time. Longitudinal studies could provide insights into how the relationships between the constructs evolve. Furthermore, the study did not examine potential moderating or mediating variables that might influence the relationships between the constructs. Future research should explore these variables to gain a deeper understanding of the dynamics involved in ICT adoption and e-leadership.

CONCLUSION

In conclusion, this study provides significant insights into the factors driving ICT adoption and e-leadership among educators. The results underscore the importance of willingness to expend effort, facilitating conditions, and personal innovativeness in enhancing ICT usage and digital leadership. Although active awareness and the quality of ICT evaluation did not show a direct impact on ICT adoption, the findings offer valuable implications for theory and practice. By addressing the limitations and exploring additional variables, future research can further refine our understanding of these dynamics and contribute to more effective strategies for promoting technology adoption and e-leadership in educational settings.

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