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From Intention to Behavior: The Role of Individual-Technology Fit in Promoting University Lecturers' Use of ICT in Teaching

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Abstract

The rapid development of information and communication technology (ICT) in higher education requires an in-depth analysis of its adoption factors. This study uses the theory of planned behavior (TPB) as an underpinning theory to understand the psychological and social factors that influence university lecturers' use of ICT for teaching. The study also introduces individual-technology fit to determine how it affects university lecturers' behavioral intention and actual ICT adoption. This study conducted quantitative data analysis on a structured questionnaire of 431 participants. Smartpls was used for analysis using structural equation modelling (SEM) to assess the relationship of key variables in the data. The study confirmed that lecturers' attitudes, subjective norms, and perceived behavioral control significantly influenced ICT adoption intention. ICT adoption was largely dependent on subjective norms; however, individual-technology fit facilitated the occurrence of ICT usage behavior. This study makes valuable progress in the field by combining behavioral patterns and technology elements to understand a unified model of ICT adoption. The study provides guidelines for educators and policymakers to strengthen ICT implementation practices and technology task integration to increase ICT adoption in higher education.

Keywords: Information and Communication Technology, University Lecturers, Individual-technology Fit, Theory of Planned Behaviour, Structural Equation Modelling

Introduction

The application and development of digital technology have penetrated into various fields of society and will have a profound impact on the future development of education (MOE, 2023). Firstly, the rapid development of society and explosive growth of knowledge pose significant challenges to traditional teaching methods.The emergence of the knowledge economy has led to educational reforms in many developed and developing countries around the world. Essentially, these reforms aim to cultivate proactive learners who collaborate with others to

build knowledge. Therefore, learner centered and constructivist oriented teaching methods are essential in pedagogy (Jimoyiannis & Komis, 2007). Information technology provides a platform for educational informatization, which obviously has advantages that traditional teaching cannot match. The traditional methods of teaching are typically characterized by a teacher-centered approach to direct instruction, where students are expected to emulate or comply with the teacher's demonstrations or directives (Oderinu et al., 2020). In traditional classroom teaching, new knowledge, information, and tasks often come from teachers and books, while in information-based classrooms, new knowledge and information often come from the internet, and learning expands from time and space to a wider range. It can be said that technology has driven the reform of classroom teaching. Integrating information and communication technology (ICT) into education is seen as a possibility of using modern technology to change outdated education systems (Buabeng-Andoh, 2012).

According to Koc & Bakir's (2010) research, the education sector remains one of the most important beneficiaries of ICT. The study by Ahitarogah & Barfi (2016) found that incorporating ICT into teaching can significantly improve students' academic performance. In addition, the introduction of ICT can concretize abstract knowledge, stimulate students' interest, and enhance teacher-student interaction (Papaioannou, P., & Charalambous, 2011). Given the advantages of integrated ICT, many countries are increasingly using this technology in their education systems (Bell, 2011). The popularity of ICT in the academic field exceeds imagination (Ahiatrogah & Barfi, 2016). Buabeng-Andoh & Yidana (2015) demonstrated that ICT has brought new changes to teaching and improved the efficiency of knowledge transfer. Amedeker's (2020) study suggests that the use of ICT in teaching and learning can cultivate students who are committed to and capable of actively participating in self-directed learning and innovation. When students have the opportunity to construct knowledge through interaction with the environment, they are able to achieve better learning outcomes. By using relevant digital technologies to provide learners with a rich environment, their interaction with themselves, emotions, and cognitive environments can be better enhanced (Keengewe et al., 2009).

Besides students, lecturers are also one of the beneficiaries of ICT. Although according to occupational analysis surveys, the likelihood of teaching being replaced by artificial intelligence in over 360 professions in human society is only 0.4% (Frey & Osborne, 2013). However, this conclusion does not mean that the teaching profession can exist independently of modern information technology. Rosenberg & Foshay (2002) emphasized that current illiteracy does not refer to those who cannot read and write, but rather to those who cannot continue learning. With the rapid development of information technology and the availability of advanced online learning resources in the future, the ability to effectively access, evaluate, and utilize the necessary educational information has become one of the fundamental qualities for future lecturers (Falloon, 2020). At the same time, lecturers need to actively adapt to the changes of educational informatization such as artificial intelligence and information technology, and flexibly use information technology to carry out education and teaching, such as using information technology to create a vivid and colorful interpersonal interactive learning environment, effectively use the rich teaching resources provided by the Internet, and fully use information technology to assist teaching. These are the basic requirements for the future development of teaching occupation (Xue et al., 2022). This requires lecturers to

understand new technologies, continuously learn new technologies, and actively apply new technologies to improve teaching.

Many countries and organizations invest in equipping schools with the latest digital technology tools, training lecturers to enhance their digital skills, and promoting their professional development (Enrique Hinostroza, 2018). On the one hand, with the rapid changes in the field of education and the increasing demand for high-quality higher education, people's expectations for the skills and professional level of lecturers have also been raised. On the other hand, with the rapid development of artificial intelligence technology, lecturers' expectations for their professional level are also increasing. Lecturers need to constantly learn to maintain their competitiveness and progress (Collinson et al., 2009). However, the rapid development of society and explosive growth of knowledge pose significant challenges to the traditional path of teacher growth. Top down training cannot meet the professional development needs of future lecturers (Demirel & Akkoyunlu, 2017). Only by maintaining the concept of lifelong learning, updating knowledge and concepts in a timely and proactive manner, can lecturers keep up with the pace of development. ICT provides a facilitating condition for knowledge sharing. ICT can not only provide real-life and interdisciplinary comprehensive learning environments for teaching, but also offer various learning technology tools for lecturers. In addition, online learning spaces also provide a platform for lecturers to access various services, offering them learning opportunities in online learning spaces (Maatuk et al., 2022). This poses a challenge for lecturers to have background knowledge in education, computer science, and statistics, as well as to be adept at utilizing ICT to access resources.

Therefore, most countries in the world are emphasizing the integration of ICT into learning and teaching methods. Governments around the world, especially in developing countries, have been striving to improve their national plans for incorporating information and communication technology into education (International Telecommunication Union, 2010). Jhurree (2005) believes that the introduction and integration of ICT are based on ongoing educational reforms around the world. Many countries are highly concerned about the development of ICT skills in their education systems, and these countries have changed the goals of their education systems based on new innovations (Ezziane, 2007). According to Cox's (2013) research, the use of ICT in education is no longer just a government choice, but is seen as a significant investment.

It is expected that the results of this study will contribute additional knowledge to the field of higher education regarding the explanation and prediction of lecturers' ICT use. On the one hand, the present study retains the core structure of TPB while incorporating individual-technology fit. The new integrated model can provide a more comprehensive perspective for predicting lecturers attitude and use of technology in the field of education. In addition, the integrated model will help to expand the scope of this study and the universality of existing technology acceptance models, as it not only explains and predicts general behavior, but also considers individual-task-technology fit, thereby expanding the model's explanatory range. On the other hand, this study contributes to improving people's understanding of the factors that promote the use of ICT by university lecturers, so that policymakers in the higher education field can make adjustments. Moreover, this study will assist managers of higher education institutions in developing strategies to promote the lecturers use of ICT in teaching. Based on

this study, managers of higher education institutions, in formulating policies, should not only consider lecturers' attitudes, and beliefs regarding ICT but also whether the technology is genuinely helpful for lecturers to complete teaching tasks.

Literature Review

ICT in Higher Education

Information and Communication Technology (ICT) has fundamentally changed all aspects of human life, particularly in the field of education (Barnes, 2020). In the past decade, the use of ICT in higher education has steadily increased, and many higher education institutions and lecturers have introduced ICT into their professional courses to assist teaching (Donitsa-Schmidt & Ramot, 2020). Therefore, higher education courses are trying to use ICT as a teaching aid to transform the teaching process from traditional direct speaking using black/white boards and simple slide presentations to a more open, lively, and interactive classroom.The results of the study show that the emergence of ICT has brought new possibilities to the field of education. Research by Szymkowiak et al (2021) found that ICT provides students with more effective ways to obtain learning information. The findings of Kompen et al (2019) indicate that ICT can be used to tailor personalized learning plans for students. In addition, the addition of ICT makes the teaching process more attractive, which greatly optimizes students' learning experience and stimulates their interest in learning (Rapanta et al., 2021; Sepulveda-Escobar & Morrison, 2020). More importantly, the use of ICT makes the acquisition of knowledge no longer restricted by time and space, which is crucial to promoting educational equity (Maatuk et al., 2022). In view of the huge benefits contained in ICT, most developed countries have significantly increased the frequency of use of ICT in the teaching process (Habibi & Zabardast, 2020). For academia, studying the factors that influence educators' adoption of ICT in the teaching process has always been one of the focuses of much attention (Oke & Fernandes, 2020).

Given the above-mentioned infinite potential and energy of ICT in changing traditional education methods, its important impact in the field of education has attracted more attention than ever before (Sarker et al., 2019). Similarly, the development of ICT has also greatly changed the teaching and learning process in higher education (Oliveira et al., 2021). A large number of higher education institutions around the world have set ICT as a tool to promote teaching, curriculum development, staff development and student learning (Scherer et al., 2021). However, despite the potential of ICT in improving teaching methods and improving teaching quality, its advantages have not been fully recognized (Szymkoviak et al., 2021). Higher education organizations have an unfounded optimism about the popularization of ICT use (Mouthaan et al., 2023). In fact, many lecturers are still hesitant about whether to integrate ICT into the classroom or are simply unwilling to use ICT to complete teaching tasks (Heinonen et al., 2019). The research results of Mercader & Gairín (2020) show that there are serious obstacles to fully integrating ICT into the teaching process in higher education. Iglesias-Pradas et al. (2021) found that many universities have low ICT adoption rates, which seriously affects the overall performance of higher education organizations, especially in improving the quality of teaching.

The Theory of Planned Behavior (TPB)

In 1991, Ajzen expanded on the Theory of Reasoned Action (TRA) with the introduction of the Theory of Planned Behavior (TPB), addressing the deficiency in acknowledging individual

control over willpower. The Theory of Planned Behavior takes into account elements such as individual attitude, subjective norm, perceived behavioral control, and intention to behave when forecasting behavior outcomes. The Theory of Planned Behavior (TPB) posits that three types of beliefs influence an individual's behavioral intentions, or tendency to engage in specific behaviors. First, behavioral beliefs are described as the subjective possibility of a specific behavior, which affects the individual's attitude toward the behavior. Second, normative beliefs are believed to affect the individual's subjective norms, which are mainly reflected in the perceived expectations of other individuals or groups for behavior. When individuals believe that the expectations of others are significant to them, subjective norms will play a significant role. Finally, control beliefs are thought to affect people's perceived behavioral control, which mainly involves factors that individuals believe encourage or hinder the occurrence of behavior.

Attitude, subjective norm, and perceived behavioral control are all attached in the Theory of Planned Behavior (TPB) as determinants of behavioral intention. A person's attitude is the way they feel about a certain action. Another definition of attitude is the way one feels about performing a certain behavior, whether it's encouraging or discouraging. Dwivedi et al (2019) found that attitude is the strongest predictor of future behavior. A teacher's attitude toward incorporating ICT into the classroom is defined as their favorable or negative feelings toward doing so. lecturers that have an optimistic view on the use of ICT in the classroom are more inclined to do so, as suggested by Lawrence & Tar (2018). When considering whether to adopt a certain behavior, an individual may feel subjective norm pressure (Cheng, 2019). Numerous studies have focused on the structure of subjective norms, which has been identified as an essential factor in explaining attitudes and behavior. Studies have examined, for instance, students' intention to utilize e-learning (Revythi & Tselios, 2019) and Malaysian students' intention to utilize mobile learning (Kumar et al., 2020).

The subjective norm in this context relates to how people's leaders, family members, and coworkers are viewed in terms of their support for lecturers' use of ICT in the classroom. Individuals' intentions to engage in certain behaviors may be impacted by the expectations of influential ones in collectivist cultures (for instance, China). An individual's sense of ease or difficulty in engaging in a certain action is referred to as their "perceived behavioral control" (Cheng, 2019). Shin & Hancer (2016) define perceived behavioral control as the perception of controllability over the factors that promote or inhibit a particular behavior. Perceived behavioral control increases intention for behavior, as predicted by the Theory of Planned Behavior. Perceived behavioral control is defined as lecturers' belief in their own competence to integrate ICT efficiently in the classroom. lecturers' beliefs about their own competence with various forms of educational technology predict whether they will utilize ICT and how often they will use it in the classroom (Fu, 2013). As a result, the current research forms the following hypotheses:

H1: There is a positive relationship between attitude and behavioral intention.
H2: There is a positive relationship between subjective norm and behavioral intention.
H3: There is a positive relationship between perceived behavioral control and behavioral intention.

The concept of behavioral intention can be described as the degree to which individuals are willing to exert effort in order to carry out a behavior (Ajzen, 1991). According to TPB, behavioral intention is considered the most direct and determining factor in predicting actual behavior. For instance, research conducted by Zenda & Dlamini (2023) has shown that intention influences the use of ICT among secondary school lecturers in South Africa. Similarly, the study by Gökçearslan et al (2022) has demonstrated that behavioral intention affects the use of Internet of Things (IoT) among pre-service lecturers in Turkey. A study on Chinese high school lecturers found that intention influences their use of ICT in EFL teaching (Li, 2022). Yusop et al (2021) also supports the positive impact of intention on the use of ICT among lecturers in Indonesia.According to Ajzen (1991), an individual's behavioral intention is the degree to which they are prepared to make an attempt to perform a given activity. According to proponents of TPB, the link between thought and action is strongest at the level of intention. For instance, Bin et al (2020) found that Chinese lecturers' intentions affected their employment with new technology. While Islam et al (2019) showed that behavioral intention influenced faculty members' use of ICT in Malaysian higher education institutions. This study's behavioral intention toward ICT use refers to lecturers' propensity to use or not use ICT in the classroom. lecturers who intend to use ICT more frequently are more likely to actually do so. The present study therefore hypothesizes:
H4: There is a positive relationship between behavioral intention and ICT usage behavior.

Ajzen (1991) believed that an individual's behavioral intention is the most reliable indicator for predicting an individual's behavior. Attitude, subjective norm, and perceived behavioral control are the three core structures of the TPB theoretical model, and they all play a unique role in explaining individual behavior. Human behavioral intention can be a psychological preparation condition for action or an internal motivational process of attitude, subjective norm, and perceived behavioral control. Behavioral intention is a mediator between the knowledge and beliefs possessed by individuals and their subsequent behavior. This study argues that assessing the mediating role of individual behavioral intention is necessary to fully grasp the importance of attitude, subjective norm, and perceived behavioral control in influencing an individual's actual behavior. In addition, researchers are unclear whether the connection between an individual's behavioral intention and behavior is strengthened by the presence of attitude, subjective norm, or perceived behavioral control, or whether an individual's behavioral intention itself directly has an overall impact on behavior. What is certain is that a better understanding of these connections will help researchers predict specific behaviors of individuals in the real world. As a result, the present study forms the following hypotheses:

H5a: There is a mediating role of intention on the relationship between attitude and ICT usage behavior.
H5b: There is a mediating role of intention on the relationship between subjective norm and ICT usage behavior.
H5c: There is a mediating role of intention on the relationship between perceived behavioral control and ICT usage behavior.

Individual-Technology Fit

Individual-technology fit refers to the alignment of a person's traits with the characteristics of the technology, which enables that individual to successfully control the technology. The interaction between individuals and technology is typically contingent on their individual-technology adaptation behavior (Yu & Yu, 2010). Individual abilities and mission requirements are matched by technological functions (Wu & Chen, 2017). Individual characteristics include but are not limited to, information literacy, prior experience, professional status, and skills. Prior research has largely neglected individual characteristics in favor of a focus on technology or individual attitudes. However, individuals are the direct implementers of technology, and individual traits will influence the adoption of information technology. For instance, when technology is deemed suitable for a person's professional level, that person is more likely to have a positive attitude toward it (Mun et al., 2006). When new users encounter a new technology for the first time, there is an inadequate match between the user and the technology. Although they may believe that the technology is beneficial, a lack of utilization experience may be one of the factors discouraging new users from adopting technology (Buabeng-Andoh, 2012). Moreover, when people have a higher level of information literacy, they can rapidly acclimate to the functionality of the technology and employ it (Falloon, 2020). Individual-technology fit, perceived usefulness, and perceived ease of use of MOOCs correlate positively, according to Wu & Chen's (2017) research. The greater the degree of integration between a person and technology, the greater the usability and practicality of the technology. Current empirical findings suggest that research on the adaptation of technology to individual characteristics and requirements is limited and should receive more attention (Zacharis & Nikolopoulou, 2022).

Numerous human behavior theories have been employed in prior research endeavors to elucidate the patterns of adoption and utilization of information and communication technology (ICT) in higher education (Althunibat, 2015). The theory of planned behavior (TPB), the technology acceptance model (TAM), and the unified theory of acceptance and use of technology (UTAUT) are among the most commonly utilized theories in this area of study. The TPB is used to describe a wide range of human behavior, while the UTAUT and TAM focus more on the use of technology. These theories elucidate belief factors influencing technology use and the characteristics of technology itself. However, according to the task-technology fit (TTF) theory, from another perspective, if individual-task-technology achieves a good fit, it is possible to stimulate the emergence of technology use behavior (Zaremohzzabieh et al., 2022). Otherwise, even though users may recognize the technological advancement, they may not use it if they perceive it as unsuitable for their activities or difficult to control with their own abilities. Therefore, people's use of technology is not only based on perception and attitude, but also on a strong individual-technology-task fit interaction. Despite numerous studies that emphasize the factors influencing the adoption of ICT by lecturers in educational settings, there remains a lack of attention to the alignment between the functionality of ICT, the characteristics of teaching tasks, and individual teacher abilities (Tsiknakis & Kouroubali, 2009). This is because only when the characteristics of ICT itself match the lecturers' characteristics as well as teaching tasks, will they be willing to use ICT

Individual-technology fit (ITF) refers to the extent to which technology functions align with individual characteristics, such as past experience, professional expertise, and technical competence (Al-Emran, 2021). In the context of this study, the impact of ITF on lecturers'

attitudes and beliefs may be a factor influencing their decision to use ICT. The research findings of Parkes (2013) indicate that the fit between individuals and technology has a direct effect on consumers' attitudes toward technology. Moreover, the greater the degree of alignment between an individual, their given task, and the utilized technology, the greater the likelihood that the technology will be positively perceived and utilized (Tsiknakis & Kouroubali, 2009). Therefore, it is anticipated that perceived ITF will influence ICT use through behavioral intention. The present study therefore hypothesizes:
H6: There is a mediating role of perceived ITF on the relationship between intention and ICT usage behavior in teaching.

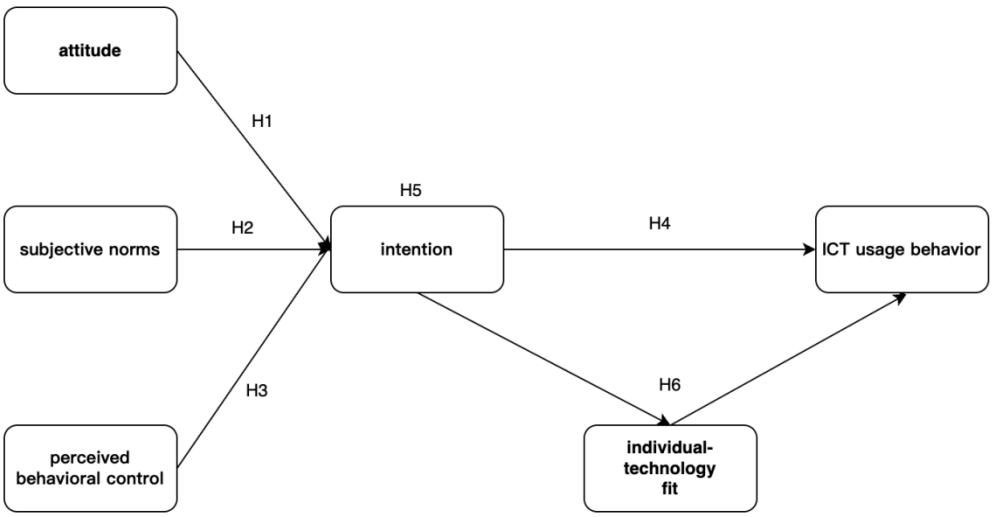

Figure 1: Conceptual Framework

Methodology

Using a cross-sectional survey design, this study conducts a quantitative analysis. The researcher developed their questionnaire through validated measurement scales extracted from past investigations to enhance both content validity and reliability. The organized survey questionnaire contains three distinct sections for demographic details and both psychological constructs, as well as behavioral measurements. Members assessed all questionnaire items through a 5-point Likert scale, which ranged from 1 (Strongly Disagree) to 5 (Strongly Agree). The research survey methodology focuses on 431 lecturers who work at universities. The study used a random sampling method to improve the overall applicability of its reported results. A preliminary assessment of 30 participants took place to verify instrument reliability before starting wide-ranging data collection. The collection method used was questionnaires, which produced outstanding participant response rates. The study explained its research goals to participants before describing confidentiality practices and informing participants about their ability to leave the study anytime while respecting ethical guidelines.

The research used Structural Equation Modelling (SEM) through Smartpls 4 as its data analysis method to validate the conceptual model. The analysis was divided into two stages to begin with measuring model evaluations for establishing validity combined with reliability utilizing

Cronbach's alpha, Composite Reliability (CR), and Average Variance Extracted (AVE), and then ended with structural model testing for path coefficients and R^2 values and bootstrapping techniques to determine relationship significance. The research investigates how behavioral intention, together with individual-technology fit functions as a mediator to influence the usage behavior of ICT. The research study properly adhered to ethical principles by respecting participant privacy, along with securing confidentiality and obtaining clear consent. The structured questionnaire together with PLS-SEM analysis and a clear sampling design system produces reliable empirical evidence regarding psychological factors alongside technological elements that influence ICT usage behavior.

Instrumentation

The scales for measuring attitudes and behavioral intentions were adapted from the research of Huang & Teo (2020), the scales for measuring subjective norms and perceived behavioral control were adapted from the research of Cheng (2019), the scales for measuring individual-technology fit were adapted from the research of Wu & Chen (2017), and the scale for measuring ICT usage behavior was adapted from the research of Van Braak et al. (2004). The analysis reveals that all model variables meet necessary psychometric requirements to demonstrate convergence validity and internal consistency and minimal collinearity, hence validating their use for subsequent analysis.

Table 1
Construct Reliability and Validity

Variables	Items	Loadings	Cronbach's Alpha	rho_A	C R	AVE	VIF
Attitude	ATT1	0.829	0.836	0.845	0.901	0.753	1.758
	ATT2	0.891					2.120
	ATT3	0.882					2.096
Behavioral Intention	INT1	0.836	0.900	0.902	0.926	0.715	2.176
	INT2	0.845					2.522
	INT3	0.887					3.042
	INT4	0.872					2.682
	INT5	0.785					1.851
Individual-Technology Fit	ITF1	0.761	0.792	0.798	0.864	0.614	1.416
	ITF2	0.814					1.756
	ITF3	0.762					1.807
	ITF4	0.794					1.943

Perceived Behavioral Control	PBC1	0.791	0.800	0.804	0.883	0.716	1.445
	PBC2	0.856					2.027
	PBC3	0.889					2.177
Subjective Norms	SN1	0.902	0.839	0.883	0.902	0.754	2.168
	SN2	0.785					1.712
	SN3	0.912					2.427
ICT Usage Behavior	UB1	0.799	0.908	0.911	0.926	0.610	2.130
	UB2	0.789					2.461
	UB3	0.767					2.304
	UB4	0.823					2.502
	UB5	0.809					2.247
	UB6	0.691					1.724
	UB7	0.797					2.602
	UB8	0.764					2.252

Results

The results show that every construct satisfies discriminant validity because the HTMT values stay below 0.85. Further analysis in this mode becomes reliable because the measured constructs demonstrate adequate differentiation from each other.

Table 2
Heterotrait-Monotrait (HTMT) Ratio

	ATT	**INT**	**ITF**	**PBC**	**SN**	**UB**
ATT						
INT	0.699					
ITF	0.565	0.654				
PBC	0.456	0.590	0.746			
SN	0.603	0.621	0.641	0.716		
UB	0.657	0.710	0.738	0.642	0.628	

All constructs maintain a stable relationship between their adjusted R-square and R-square values which demonstrates the model's robustness and stability across the variables. Studies demonstrate that the dependent variables receive different strength of influence from varying factors.

Table 3
R-Square and Adjusted R-Square Values

	R-square	R-square adjusted
ATT	0.429	0.428
INT	0.484	0.481
ITF	0.320	0.318
PBC	0.207	0.205
SN	0.284	0.283
UB	0.542	0.539

Figure 2 provides the structural model, which uses the analysis results to validate the conceptual framework by presenting path coefficients and factor loadings. The results validate the relationship between attitude, subjective norm, perceived behavioral control, and behavioral intention, as well as the mediating role of individual-technology fit between behavioral intention and technology usage behavior. The study depicts the theoretical constructs using blue nodes and yellow boxes representing measurement items. The strength of the relationships in the model is represented by the combination of the path coefficients and the factor loadings used to connect the importance measures.

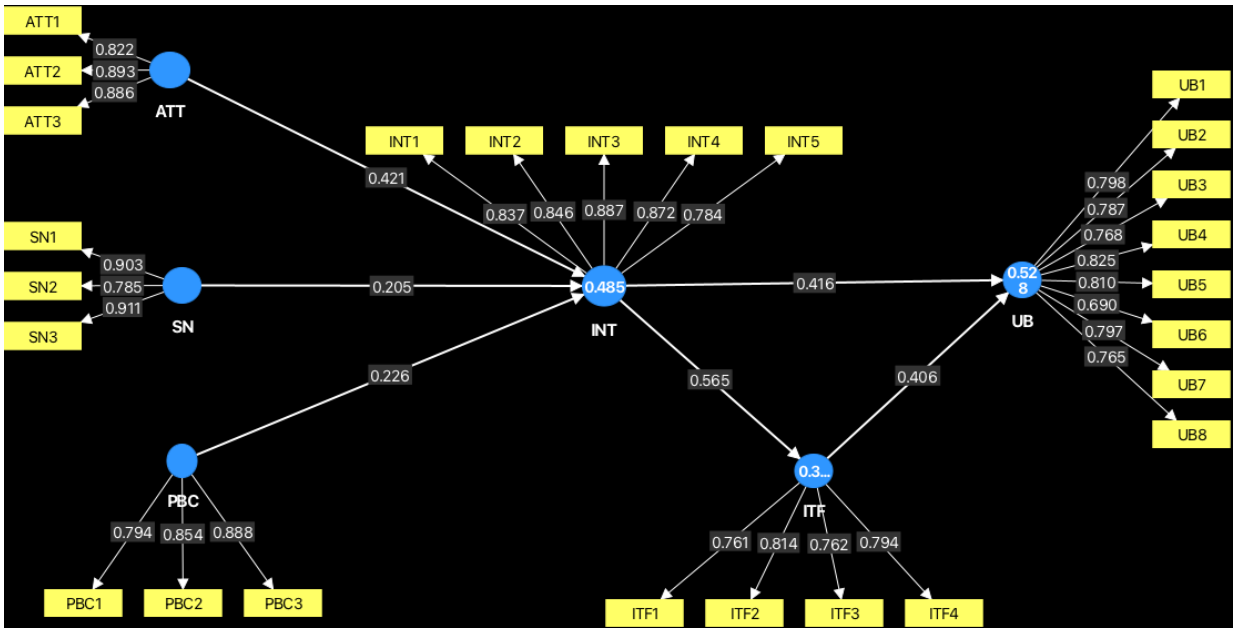

Figure 2: Structural Model

The model fit indices in Table 4 show the results from the saturated model together with the estimated model. The Standardized Root Mean Square Residual displayed 0.067 in the saturated model which outperformed the 0.103 reported in the estimated model. The d_ULS (Squared Euclidean Distance) value sets a stronger benchmark for model fit in the saturated model at 1.573 since it registers below the estimated model value of 3.691. The Geodesic

Distance (d_G) values indicate 0.706 for the saturated model and 0.785 for the estimated model which shows a minor variation in model-to-data suitability. The Chi-square value reaches 1702.771 when measuring the saturated model yet rises to 1839.892 when evaluating the estimated analysis of fit because it reveals the gap between observed and model-based covariance matrices. The Normed Fit Index (NFI) shows that the saturated model achieves better fit with a value of 0.775 than the estimated model which has a value of 0.757.

Table 4
Model Fitness

	Saturated model	**Estimated model**
SRMR	0.067	0.103
d_ULS	1.573	3.691
d_G	0.706	0.785
Chi-square	1702.771	1839.892
NFI	0.775	0.757

The relationships between main model constructs emerge from the results displayed in Table 8. The study validates behavioral intention as the primary element in ICT usage behavior analysis because it demonstrates strong direct effects ($\beta = 0.354$, $p < 0.001$) while showing significant predictors in attitude ($\beta = 0.121$, $p < 0.001$), subjective norms ($\beta = 0.277$, $p < 0.001$), and perceived behavioral control ($\beta = 0.280$, $p < 0.001$). The path from behavioral intention toward ICT adoption follows three different indirect routes, which are defined by attitude ($\beta = 0.062$, $p = 0.002$) and subjective norms ($\beta = 0.142$, $p < 0.001$) as well as perceived behavioral control ($\beta = 0.099$, $p < 0.001$). The study investigates how individual-technology fit ($\beta = 0.486$, $p < 0.001$) serves as a mediating variable in defining ICT usage behavior. Individual-technology fit enhances the relationship between behavioral intentions and ICT usage behaviour.

Table 5
Path Coefficients and Hypothesis Testing Results

	Original Sample (O)	**Sample Mean (M)**	**Standard Deviation (STDEV)**	**T Statistics (|O/STDEV|)**	**P Values**	**Results**
ATT>INT	0.121	0.122	0.031	3.859	0	Accepted
SN>INT	0.277	0.277	0.034	8.19	0	Accepted
PBC>INT	0.28	0.281	0.04	6.982	0	Accepted
INT> ICT UB	0.354	0.353	0.056	6.309	0	Accepted
ATT>INT> ICT UB	0.062	0.063	0.02	3.165	0.002	Accepted
SN>INT> ICT UB	0.142	0.142	0.029	4.849	0	Accepted
PBC>INT>ICT UB	0.099	0.099	0.02	4.853	0	Accepted
INT>ITF>ICT UB	0.486	0.487	0.083	5.852	0	Accepted

Discussion of Findings

The findings of this study provide strong empirical support for the proposed theoretical model, demonstrating how behavioral intention and individual-technology fit factors contribute to ICT adoption. The study supports the influence of attitude (H7: $\beta = 0.121$, $p < 0.001$), subjective norms (H8: $\beta = 0.277$, $p < 0.001$), and perceived behavioral control (H9: $\beta = 0.280$, $p < 0.001$) on behavioral intention. Among these, subjective norms had the strongest impact, suggesting that peer influence and social expectations play a dominant role in shaping ICT adoption decisions. This is particularly relevant in environments where technology use is encouraged or required, such as educational or workplace settings. The direct effect of behavioral intention on ICT usage behavior (H10: $\beta = 0.354$, $p < 0.001$) confirms that individuals with a strong intention to use ICT are more likely to engage with technology in practice. Additionally, the study examines indirect effects, showing that attitude (H11: $\beta = 0.062$, $p = 0.002$), subjective norms (H12: $\beta = 0.142$, $p < 0.001$), and perceived behavioral control (H13: $\beta = 0.099$, $p < 0.001$) mediate the relationship between behavioral intention and ICT usage behavior. The study also evaluates the moderating roles of individual-technology fit (H15: $\beta = 0.486$, $p < 0.001$). Interestingly, individual-technology fit positively mediates the relationship between intention and ICT usage. These findings indicate that simply having the intention to use ICT is not sufficient; the technology must also be well-suited to the user's specific needs and tasks. In summary, all hypotheses in this study were statistically significant and accepted, validating the integrated model of TPB and Individual-Technology Fit in predicting ICT adoption. The results highlight the critical role of social influences and individual-technology alignment in determining technology usage behavior. These insights contribute to both theoretical advancements and practical strategies for improving ICT implementation and adoption.

Conclusions

This study determined in detail the factors that promote university teachers to use information and communication technology in teaching activities by verifying the relationship between the variables of the theory of planned behaviour and the role of the mediating variable of individual-technology fit.The results of the study showed that in the TPB structure, attitude and perceived behavioral control were important antecedents that promoted ICT usage behaviour, while individual-technology fit was a positive mediating factor between technology use intention and behaviour and was considered to be an important determinant that promoted teachers to use ICT in teaching activities.

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