FACTORS INFLUENCING THE BEHAVIOURAL INTENTION TO USE MOBILE TECHNOLOGIES BY PRE-SERVICE MATHEMATICS TEACHERS IN COLLEGES OF EDUCATION, NIGER STATE, NIGERIA

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Abstract
Despite the increasing adoption of mobile technologies in Nigerian colleges of education, there is a need to address the factors influencing the behavioural intention of pre-service mathematics teachers towards their use. Thus, this study aims to investigate the determinants of behavioural intention to use mobile technologies among pre-service mathematics teachers in colleges of education in Niger State, Nigeria. Utilizing the Unified Theory of Acceptance and Use of Technology (UTAUT-2), this research seeks to provide insights into the adoption and utilization of mobile technologies for learning purposes by this specific group of educators. The study employed a descriptive survey design involving 321 pre-service mathematics teachers enrolled in colleges of education in Niger State. The majority of participants were male, constituting 60.4% of the sample. Hypothesized relationships were examined using the AMOS structural equation model. Results indicated that all constructs demonstrated satisfactory levels of reliability and validity, with composite reliability (Cα) and construct reliability (CR) exceeding 0.7 and average variance extracted (AVE) surpassing 0.5. The extension of the Unified Theory of Acceptance and Use of Technology Model provided a robust framework for understanding the behavioural intention of pre-service mathematics teachers towards mobile technology, indicating good explanatory power in the context of the study. Although effort expectancy had a surprisingly insignificant effect on pre-service mathematics teachers' behavioural intention of mobile technology, Performance expectancy, social influence, hedonic motivation, price, and facilitating conditions with ($\beta = 0.23$, $p < .001$), ($\beta = 0.41$, $p < .001$), ($\beta = -0.34$, $p < 0.001$), ($\beta = 0.21$, $p < 0.001$), and ($\beta = -0.34$, $p < 0.001$), respectively.

Keywords: Behavioural intention, Mobile technology, pre-service mathematics teachers, Unified Theory of Acceptance and Use of Technology (UTAUT-2)

Introduction

Information and communication technology (ICT) has profoundly impacted numerous facets of human existence, spanning economics, politics, culture, arts, and education. Within the realm of education, ICT has emerged as a powerful tool, bridging the gaps left by conventional textbooks and instructional methods. Its integration necessitates individuals to possess both technical prowess and digital literacy, thereby reshaping the landscape of learning and teaching methodologies (Alotumi, 2020). Technology has undoubtedly revolutionized the landscape of education, reshaping the traditional classroom environment and pedagogical methods. With the advent of digital tools and resources, educators have been presented with unprecedented opportunities to engage and interact with students in more dynamic and immersive ways. However, despite the perception that today's students, often labelled as millennials and digital natives,

seamlessly integrate technology into their learning experiences, research suggests otherwise. Margaryan et al. (2011) argue that these students are digital immigrants, possessing varying degrees of technological literacy. Consequently, the successful integration of technology in the classroom hinges on educators' ability to navigate students' diverse technological competencies and preferences, as well as their receptiveness to incorporating new tools into the learning process. As highlighted by Esteban-Millat et al. (2018), the extent to which students embrace these technological innovations significantly influences their behavioural intentions and ultimately impacts the efficacy of the educational experience.

In Nigeria, educators are increasingly turning to technology integration as a solution to address the persistent issue of low achievement levels among mathematics learners. Recognizing the potential of instructional technology to enhance student engagement, attitude, and motivation, educators emphasize the importance of effectively incorporating technological tools into the mathematics curriculum (Bray, & Tangney, 2016). Various technological innovations have emerged within the mathematics education sphere, offering promising avenues for student learning and achievement (Bicer & Capraro, 2017; Shittu et al., 2018). However, the efficacy of these advancements relies heavily on the proficiency and dedication of qualified teachers to effectively utilize and integrate technology into their teaching practices (Ríordáin et al., 2016). Simply introducing computers and other technological devices into the classroom is insufficient without the necessary support and guidance from educators who are adept at connecting these tools to facilitate meaningful learning experiences (Bicer & Capraro, 2017; Dele-Ajayi et al., 2019). While the adoption of technology holds promise for improving mathematics education outcomes in Nigeria, its success hinges on the commitment of educators to embrace and leverage these advancements effectively (Barakabitze et al., 2019). Despite the availability of cutting-edge resources, the impact on student achievement remains limited without skilled teachers who can navigate the complexities of integrating technology into the curriculum. Therefore, there is a critical need for ongoing professional development initiatives to equip teachers with the necessary knowledge and skills to leverage technology in ways that optimize student learning experiences (Badmus et al., 2018; Dele-Ajayi et al., 2019). By empowering educators to harness the full potential of instructional technology, Nigeria can cultivate a dynamic and engaging mathematics classroom environment conducive to fostering academic success and nurturing a generation of proficient mathematicians.

Technology integration includes educational software, computers, simulation, and other resources that enhance learning. However, the inadequate resourcing of technology and instructional materials to engage learners is a concern in Nigeria (Suleiman et al., 2019; Zakariya, 2017). As such the need to integrate network resources through the use of mobile applications in Mathematics which is represented by educational platforms that widely cover the process of teaching mathematics in educational institutions is a major focus in this study. In general, many multifunctional mobile applications of mathematical orientation are freely available. Applications are constantly updated, which increases the number of their functions and overall performance. We believe that the use of mobile technologies and learning tools in mathematics in the educational process of educational institutions has great prospects. The importance of mathematics in Nigeria, a developing country, cannot be overstated, particularly in light of its role in preparing students for the demands of a modern society driven by science and technology. The emphasis placed on mathematics education in the 2013 National Policy on Education underscores this significance, yet despite such recognition, student performance in the subject, as highlighted in the 2020 Chief

Examiner's Report by the National Examinations Council, continues to decline annually. Addressing this challenge requires innovative approaches, and integrating mobile technologies and learning tools emerges as a critical strategy to enhance mathematics education. Understanding the attitudes and intentions of mathematics teachers towards incorporating such technologies is therefore pivotal in improving the delivery and effectiveness of mathematics instruction. In essence, the adoption of mobile technologies and learning tools presents a promising avenue to augment the teaching and learning of mathematics in Nigeria (Fahm et al., 2022; Okai-Ugbaje et al., 2020). By leveraging these tools, educators can potentially enhance engagement, facilitate interactive learning experiences, and address the diverse learning needs of students.

The successful integration of mobile technologies into mathematics education relies heavily on students' willingness to embrace these tools, as highlighted by Hillmayr et al. (2020). Recognizing the myriad factors that shape students' attitudes and intentions towards mobile technology usage is crucial for educators, policymakers, and developers alike. By pinpointing these influences, stakeholders can develop tailored interventions and strategies to facilitate the effective utilization of mobile technologies in mathematics curricula. Furthermore, investigating the behavioural intentions of mathematics Pre-Service teachers towards mobile technologies, as noted by Islamoglu et al. (2021), offers valuable insights into their preferences, attitudes, and motivations. This understanding can guide the creation of instructional materials and pedagogical approaches that resonate with students' learning styles, ultimately enhancing educational outcomes.

Examining students' behavioural intentions regarding mobile technology use is vital for its sustained adoption within educational settings. Various models, such as the Technology Acceptance Model (TAM), Theory of Planned Behaviour (TPB), Theory of Reasoned Action (TRA), Unified Theory of Acceptance and Use of Technology (UTAUT), and its extension UTAUT2, have been employed to investigate the determinants of users' inclination to embrace specific technologies. Among these, UTAUT and its extended version UTAUT2 have gained significant traction for assessing behavioural intention toward information technology adoption, reflecting their widespread use and applicability in recent studies (Venkatesh et al., 2003; Venkatesh et al., 2012). In understanding the factors influencing the behavioural intention to use mobile technologies by mathematics students, the Technology Acceptance Model (TAM) provides a valuable theoretical framework. TAM posits that perceived ease of use and perceived usefulness are key determinants of individuals' attitudes towards technology adoption (Raza et al., 2017). In the context of mathematics education, students' perceptions of how easy it is to navigate mobile applications for learning mathematical concepts and the extent to which they perceive these technologies as beneficial in enhancing their understanding play crucial roles in shaping their behavioural intentions.

Furthermore, the Unified Theory of Acceptance and Use of Technology (UTAUT) extends TAM by incorporating additional constructs such as social influence, facilitating conditions, and behavioural intention (Venkatesh et al., 2016). UTAUT suggests that users' intentions to adopt technology are influenced not only by their perceptions of its usefulness and ease of use but also by external factors such as social norms and technical support. In the context of mathematics education, UTAUT provides a comprehensive framework for understanding the multifaceted nature of students' behavioural intentions towards mobile technologies. By exploring the interplay between individual beliefs, social influences, and contextual factors, this study can provide a

nuanced understanding of the dynamics driving technology adoption among mathematics students, thereby informing strategies to promote its successful integration in educational settings. As posited by Venkatesh et al. (2003), the Unified Theory of Acceptance and Use of Technology (UTAUT) model comprises four moderator constructs including gender, age, voluntariness of use, and experience. However, a study by Mentaya et al. (2015) revealed that these moderating variables, namely gender, age, voluntariness of use, and experience, do not exert a significant influence on the relationship between the dependent and independent variables. Consequently, researchers have opted to refine the UTAUT model by excluding age, gender, experience, and voluntariness of use as moderators in delineating the relationship between dependent and independent variables. According to Venkatesh and Davis (2003), the original Unified Theory of Acceptance and Use of Technology (UTAUT) model consists of six primary constructs: performance expectancy, effort expectancy, social influence, facilitating conditions, behavioural intention, and use behaviour. However, with the substantial growth in understanding facilitated by UTAUT, additional constructs such as hedonic motivation, price value, and habit were incorporated into the model, leading to its evolution into UTAUT2 (Venkatesh et al., 2012).

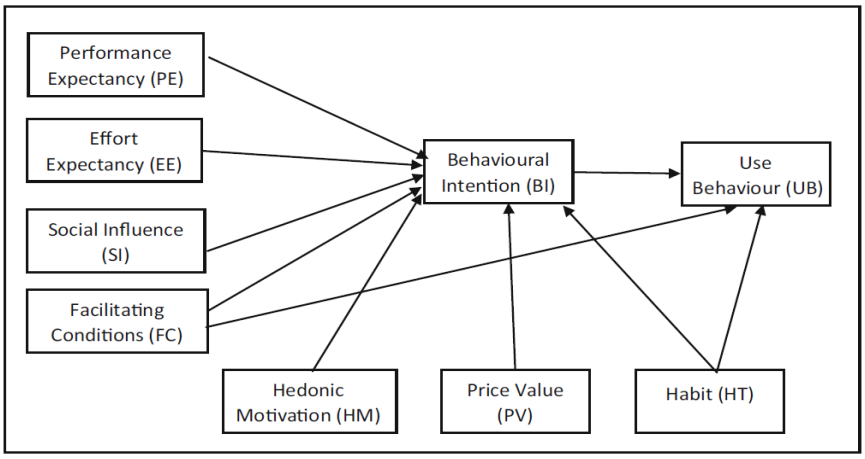

Fig. 1 The Unified Theory of Acceptance and Use of Technology2 (UTAUT2) (Venkatesh et al. 2012)

This research aims to explore the factors that influence pre-service mathematics teachers' behavioural intention to adopt mobile technologies in their educational practices. Employing the UTAUT2 model as the theoretical framework, the study aims to dissect the intricate interplay of determinants such as performance expectancy (PE), effort expectancy (EE), social influence (SI), facilitating conditions (FC), Hedonic motivation (HM), Price value (PV), and Habit (H) on pre-service teachers' attitudes and behaviours towards mobile technology utilization. The research objective is to examine how performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit influence the behavioural intention to use mobile technologies among pre-service mathematics teachers in colleges The research objective is to examine how performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit influence the behavioural intention to use mobile technologies among pre-service mathematics teachers in colleges of education in Niger State. Additionally, the study aims to provide recommendations for mobile technology companies based on the research findings. By investigating these factors, the research seeks to enhance understanding of the determinants of mobile technology adoption among pre-

service teachers, thus offering valuable insights for companies in this sector to improve their products and services to better meet the needs of this specific user group. of education in Niger State. Additionally, the study aims to provide recommendations for mobile technology companies based on the research findings. By investigating these factors, the research seeks to enhance understanding of the determinants of mobile technology adoption among pre-service teachers, thus offering valuable insights for companies in this sector to improve their products and services to better meet the needs of this specific user group.

Performance expectancy (PE) is a crucial construct in the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2), as it reflects an individual's belief in the ability of a system to enhance their work performance (Venkatesh and Davis, 2003). Given that PE reflects individuals' beliefs about the potential benefits of utilizing a system, it is essential to examine how these teachers perceive the impact of mobile technologies on their work performance and teaching effectiveness. By exploring how PE influences the behavioural intention to use mobile technologies among pre-service mathematics teachers, the study can provide valuable insights into the factors that drive technology adoption in educational settings and inform strategies for promoting the effective integration of mobile technologies in teacher education programs in Niger State, Nigeria. The proposed hypothesis is:

H1: Performance expectancy (PE) will be positively associated with pre-service mathematics teachers' behavioural intention (HI) to use mobile technologies

Effort expectancy (EE), as defined by Venkatesh and Davis (2003), plays a crucial role in shaping individuals' attitudes towards technology adoption, particularly in educational contexts. The UTAUT2 model emphasizes the significance of EE as a predictor of technology acceptance (Venkatesh et al., 2012). In the context of pre-service mathematics teachers in colleges of education in Niger State, Nigeria, this study defines EE as their perceived ease of use of mobile technologies for teaching purposes. The extent to which these teachers believe that mobile technologies will be easy to employ in their teaching practices influences their intention to continue using them. Therefore, this research aims to investigate the factors influencing the behavioural intention to use mobile technologies among pre-service mathematics teachers, with a specific focus on their perceived EE, to inform strategies for promoting the effective integration of mobile technologies in teacher education programs in Niger State, Nigeria. The proposed hypothesis is:

H2: Effort expectancy (EE) will be positively associated with pre-service mathematics teachers' behavioural intention (HI) to use mobile technologies

Social influence (SI), as conceptualized by Venkatesh and Davis (2003), refers to the extent to which individuals perceive pressure or encouragement from significant others, such as teachers, classmates, family, and friends, to utilize a new system. In the context of pre-service mathematics teachers in colleges of education in Niger State, Nigeria, this study defines SI as their self-reported perceptions of the influence exerted by their social circle regarding the use of mobile technologies for teaching purposes. Previous research has shown that SI can significantly impact users' behavioural intentions in various contexts (Yunus et al., 2021). Therefore, this research aims to explore pre-service mathematics teachers' perceptions of SI and its connection to their behavioural

intention to use mobile technologies, providing valuable insights into the social dynamics influencing technology adoption in teacher education programs in Niger State, Nigeria. The proposed hypothesis is:

H3: Social Influence (SI) will be positively associated with pre-service mathematics teachers' behavioural intention (HI) to use mobile technologies

Facilitating conditions (FC) play a vital role in shaping individuals' perceptions of their ability to effectively utilize a system, as outlined by Venkatesh and Davis (2003). In the context of pre-service mathematics teachers in colleges of education in Niger State, Nigeria, this study defines FC as their self-reported perceptions of the availability of technological and organizational infrastructure to support the use of mobile technologies for teaching purposes. Therefore, this research aims to investigate pre-service mathematics teachers' perceptions of FC and its relationship with their behavioural intention to use mobile technologies, providing insights into the factors influencing technology adoption in teacher education programs in Niger State, Nigeria. The proposed hypothesis is:

H4: Facilitating Condition (FC) will be positively associated with pre-service mathematics teachers' behavioural intention (HI) to use mobile technologies

Hedonic motivation (HM) refers to the enjoyment or pleasure derived from using a system, as defined by Venkatesh et al. (2012). Recent research in tertiary education has highlighted HM as a significant predictor of behavioural intention in technology implementation within higher education settings (Moorthy et al., 2019). In the context of pre-service mathematics teachers in colleges of education in Niger State, Nigeria, this study defines HM as their self-reported perceptions of the enjoyment they experience when utilizing mobile technologies for teaching purposes. Therefore, this research aims to explore pre-service mathematics teachers' perceptions of HM and its association with their continued intentions to use mobile technologies, providing valuable insights into the factors influencing technology adoption in teacher education programs in Niger State, Nigeria. The proposed hypothesis is:

H5: Hedonic Motivation (HM) will be positively associated with pre-service mathematics teachers' behavioural intention (HI) to use mobile technologies

Price value (PV) reflects an individual's assessment of the balance between the perceived benefits of using a system and its monetary cost, as defined by Venkatesh et al. (2012). In the context of pre-service mathematics teachers in colleges of education in Niger State, Nigeria, the study investigates factors influencing the behavioural intention to use mobile technologies, and PV is particularly relevant. PV has been shown to directly influence behavioural intention in technology adoption, as indicated by the UTAUT2 model (Venkatesh et al., 2012). As such, this research aims to explore other factors influencing the behavioural intention to use mobile technologies among pre-service mathematics teachers, providing insights into technology adoption in teacher education programs in Niger State, Nigeria. The proposed hypothesis is:

H6: Price Value (PV) will be positively associated with pre-service mathematics teachers' behavioural intention (HI) to use mobile technologies

Habit (HA) refers to the extent to which an individual tends to perform behaviours using a system, as defined within the UTAUT2 model by Venkatesh et al. (2012). This concept holds significant predictive power for technology users' behavioural intention, particularly in tertiary education contexts, where it can forecast students' intentions to utilize technology (Moorthy et al., 2019). By exploring the influence of HA on behavioural intention, this research aims to shed light on the factors shaping technology adoption among pre-service mathematics teachers, thereby informing strategies for the effective integration of mobile technologies in teacher education programs. The proposed hypothesis is:

H7: Habit (HA) will be positively associated with pre-service mathematics teachers' behavioural intention (HI) to use mobile technologies

Behavioural intention (BI) represents users' willingness to adopt and utilize new technologies, as defined by Venkatesh and Davis (2003). The UTAUT2 model identifies several factors that directly influence BI, including performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit (Venkatesh et al., 2012). Given the critical role of BI in predicting technology adoption behaviour (Venkatesh et al., 2012), this research investigates pre-service mathematics teachers' BI and its relationship with their intentions to use mobile technologies, aiming to provide insights into the factors influencing technology adoption in teacher education programs in Niger State, Nigeria. 23

Methodology

The research employed a descriptive survey design. The study population comprised 10 pre-service mathematics teachers in colleges of education in Niger State during the 2023/2024 academic session. The study employed a multi-stage sampling approach. Firstly, a purposive sampling method was utilized to select 200 second-year pre-service mathematics teachers from colleges of education in Niger State. Subsequently, a simple random sampling technique was employed to choose 322 students, with the sample size determined using the Krejcie and Morgan (1970) table as a reference. A researcher-designed questionnaire named "Factors Influencing the Behavioural Intention to Use Mobile Technologies (FIBIMT)'' was used for data collection. The questionnaire was divided into two sections; section A was about the respondents' demographic information. Section E consisted of a statement to assess pre-service mathematics teachers' behavioural intention to use mobile technologies using a four-point Likert scale: Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD), corresponding to numerical values of 4, 3, 2, and 1, respectively. The questionnaire was validated by one expert in the Department of Educational Technology, Federal University of Technology Minna, one expert at College of Education Minna and one expert in guidance and counselling at College of Education Minna, Niger state. A pilot test was conducted to determine the reliability of FIBIMT using a total of 20 pre-service teachers and the result was computed using Cronbach Alpha. The study utilized SPSS 27.0 for descriptive analysis to characterize participant demographics, followed by assessing the reliability and validity of items through Cronbach's alpha, standardized factor loading, composite reliability, and average variance extracted using SPSS 19.0 and Excel. Subsequently, AMOS 21.0 was employed to construct a structural equation model (SEM) for understanding the behavioural intention to use mobile technologies among pre-service mathematics teachers in colleges of education in Niger State. The SEM included eight latent variables, and AMOS 21.0 was further used to evaluate the model fit and test hypotheses regarding factors influencing pre-service

mathematics teachers' intentions to use mobile technologies in colleges of education in Niger State. This integrated approach allowed for a comprehensive examination of the relationships between constructs and provided valuable insights into the factors driving behavioural intentions towards mobile technology adoption among pre-service teachers.

Result:

Demographics:

Table 1 Demographic information.

		Frequency	Percent
Gender			
	Male	194	60.4
	Female	127	39.6
College			
	COE	179	55.8
	FCE	142	44.2
	Total	321	100

COE, Niger State College of Education; FCE, Federal College of Education (FCE) Kontagora

Table 4.1 presents the demographic characteristics of a sample of 321 pre-service mathematics teachers, providing a comprehensive overview of their gender distribution and College. The demographic table shows that 60.4% of the participants were male, while 39.6% were female. Additionally, 55.8% of the participants were from the College of Engineering (COE), and 44.2% were from the Faculty of Creative Engineering (FCE).

Measurement model assessment:

Reliability analysis, as delineated by Bagozzi (1981), served to assess the durability and coherence of questionnaire measurement outcomes. Concurrently, convergent validity, a crucial aspect of measurement validity, was meticulously evaluated using three key indicators outlined by Cohen (1992): standardized factor loading, average variance extracted (AVE), and composite reliability (CR). These metrics provided a comprehensive understanding of the extent to which the questionnaire items accurately captured the underlying constructs, ensuring the robustness and trustworthiness of the measurement instrument employed in the study.

Table 2: Reliability and convergent Validity of the measurement model or Construct Reliability Results.

Construct	No. of items	Item loading	CR	Cronbach's a	AVE
Performance Expectancy (PE),	4	0.91-0.83	0.873	0.94	0.725
Effort Expectancy (EE),	5	0.92-0.81	0.841	0.83	0.552
Social Influence (SI),	5	0.83-0.74	0.776	0.76	0.621
Facilitating Conditions (FC),	5	0.89-0.87	0.848	0.84	0.538
Hedonic Motivation (HM),	5	0.89-0.78	0.926	0.85	0.682
Price Value (PV),	5	0.81-0.77	0.812	0.82	0.731
Habit (HA)	5	0.93-0.85	0.864	0.74	0.653

Behavioural Intention (BI)	4	0.93-0.87	0.942	0.89	0.727

AVE, Average Variance Extracted; CR, Composite Reliability.

The lowest standardized factor loading for each item was 0.74, surpassing the threshold of 0.5 (Hair et al., 2010). Similarly, the lowest composite reliability (CR) value for each variable was 0.78, exceeding the acceptable level of 0.7 as suggested by Chin (2003). Additionally, the average variance extracted (AVE) values for each variable ranged from 0.552 to 0.94, all above the recommended minimum of 0.5 according to Cohen (1992). These results indicate strong reliability and validity of the measurement instruments used in the study.

Discriminate validity:

Discriminant validity is crucial for ensuring that each construct within a model measure something distinct from other variables. The study employs a stringent criterion, the Heterotrait-Monotrait Ratio (HTMT), to verify the uniqueness of each construct in the model (Hair et al., 2017). This assessment helps researchers to accurately gauge the extent to which each variable captures a different aspect of the phenomenon under study, thereby enhancing the robustness and validity of their findings

Table 3 Discriminant validity of measurement model

	PE	EE	SI	FC	HM	PV	HA	HI
PE	**0.84**							
EE	0.56*	**0.77**						
SI	0.54*	0.57*	**0.87**					
FC	0.63*	0.61*	0.58*	**0.82**				
HM	0.52*	0.57*	0.43*	0.37*	**0.83**			
PV	0.71*	0.67*	0.67*	0.56*	0.54*	**0.86**		
HA	0.53*	0.45*	0.45*	0.37*	0.61*	0.52*	**0.78**	
HI	0.58*	0.48*	0.50*	0.59*	0.40*	0.34*	0.38*	**0.87**

*p < 0.05.

The analysis presented in Table 3 validates that all HTMT values in the examined model fall below the threshold of 0.90, as recommended by Henseler et al. (2015). This suggests adequate discriminant validity among the constructs being examined (Hair et al., 2019). HTMT values exceeding 0.90 would suggest a potential issue with discriminant validity. Therefore, the findings from this analysis suggest that the variables in the model are distinct from one another, thus supporting the validity of the construct relationships being examined.

Path analysis:

Table 4 Structural model assessment

Relationship	Coefficients Beta (β)	SD	t	p	f^2	Result
PE—> BI	-0.23	0.31	1.39**	0.00	0.06	Support
EE—> BI	- 0.15	0.29	0.29	0.77	0.20	Not Support
SI—> BI	0.41	0.34	3.59**	0.00	0.35	Support
FI—> BI	- 0.34	0.30	2.16**	0.00	0.30	Support
HM—> BI	0.21	0.21	2.18**	0.00	0.42	Support
PV—> BI	0.46	0.33	1.70**	0.00	0.59	Support
HA—> BI	0.86	0.23	2.34**	0.01	0.57	Support

**p < .001

PE = performance expectancy, EE = effort expectancy, SI = social influence, FC= facilitating conditions, HM= Hedonic motivation, PV= Price value, HA= Habit, BI= Behavioural intention.

In Table 4, the study reveals that habit ($\beta = 0.86$, $p < .001$) is the most influential determinant of pre-service mathematics teachers' behavioural intention to use mobile technologies, supported by a significant effect size of $f2 = 0.57$. Performance expectancy ($\beta = 0.23$, $p < .001$), social influence ($\beta = 0.41$, $p < .001$), hedonic motivation ($\beta = -0.34$, $p < 0.001$), price value ($\beta = 0.21$, $p < 0.001$), and facilitating conditions ($\beta = -0.34$, $p < 0.001$), also contribute significantly to their intention. However, effort expectancy ($\beta = -0.34$, $p > 0.001$), was found to be statistically insignificant in predicting their behavioural intention.

Discussion:

The study aimed to investigate the factors influencing pre-service mathematics teachers' intention to use mobile technologies in colleges of education in Niger State, Nigeria. The research model integrated various determinants such as performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, habit, and behavioural intention within the UTAUT-2 framework. Through a survey of 321 participants, it was found that the primary determinants of behavioural intention were performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, habit, and behavioural intention, in that order. The study also revealed the positive influences of these factors on behavioural intention, while the moderating role of effort expectancy, facilitating conditions, and hedonic motivation was negative. These findings contribute to a better understanding of the factors driving the adoption of mobile technologies among pre-service mathematics teachers.

The relationship between performance expectancy (PE) and behavioural intention (BI) yielded a p-value of 0.00, indicating strong statistical significance. This suggests that individuals are more inclined to adopt a behaviour if they perceive it to be useful and beneficial, it is in line with previous research findings by Venkatesh et al. (2003). Consequently, the findings support the hypothesis that performance expectancy positively influences behavioural intention, emphasizing the importance of perceived utility in driving behavioural decisions. In contrast, the relationship between effort expectancy (EE) and behavioural intention (BI) produced a p-value of 0.77, indicating a lack of statistical significance. This implies that the ease of use or convenience of behaviour may not significantly influence individuals' intentions to adopt it, as revealed by Mohd etal., (2022). As a result, the findings suggest that factors other than effort expectancy may play a more substantial role in shaping behavioural intentions.

Social influence (SI) demonstrated a significant positive effect on behavioural intention, with a p-value of 0.00. This indicates that individuals are influenced by the opinions and behaviours of others when making decisions about adopting a behaviour, as a study by Nassar et al., (2019). Thus, the findings underscore the significance of social factors in shaping behavioural intentions and highlight the role of peer influence in driving behaviour change. The relationship between facilitating conditions (FI) and behavioural intention (BI) did yield statistical significance, with a p-value of 0.00. This suggests that the availability of resources or support strongly influences individuals' intentions to engage in a behaviour (Hoi, 2020). Consequently, the findings imply that facilitating conditions is critical in determining behavioural intentions. Hedonic motivation (HM) did demonstrate a significant effect on behavioural intention, with a p-value of 0.00. This suggests

that individuals' desire for pleasure or enjoyment strongly influences their intentions to adopt a behaviour. As a result, the findings suggest that hedonic factors are influential in driving behaviour change compared to other motivational factors.

The relationship between price value (PV) and behavioural intention (BI) did not demonstrate significance. This indicates that individuals are more likely to adopt a behaviour if they perceive it to offer good value for the price (Irtema et al., 2018) Thus, the findings highlight the importance of perceived value in influencing behavioural intentions and emphasize the role of economic considerations in shaping behaviour. Finally, habit (HA) demonstrated a significant positive effect on behavioural intention, with a p-value of 0.01. This suggests that habitual behaviour positively influences individuals' intentions to engage in a behaviour (Meiyanti et al.,2018) Consequently, the findings underscore the role of habit formation in driving behaviour change and emphasize the importance of understanding and leveraging existing habits in promoting desired behaviours.

Conclusion:

This study investigated the determinants of behavioural intention to use mobile technologies among pre-service mathematics teachers in colleges of education in Niger State, Nigeria. As hypothesized, factors such as performance expectancy, social influence, hedonic motivation, price, and facilitating conditions were found to significantly contribute to their intention to use mobile technologies. With this model explaining a significant portion of the variance in behavioural intention, the findings offer valuable insights for potential adopters. However, further research is recommended to explore the actual usage behaviour of mobile technologies among this demographic and to delve deeper into the factors influencing adoption to inform effective strategies for implementation and support.

Recommendation:

Based on the research findings on factors influencing the behavioural intention to use mobile technologies by pre-service mathematics teachers in colleges of education in Niger State, Nigeria, the following recommendations can be made:

1. Collaborate with educational institutions and government agencies to promote the adoption and integration of mobile technologies into the curriculum and teaching practices.
2. Continuously monitor and evaluate the usage and effectiveness of mobile technology solutions among pre-service mathematics teachers, seeking feedback for improvement and adaptation.
3. Explore the potential barriers and challenges to the adoption and sustained use of mobile technologies by pre-service mathematics teachers and identify strategies to address them.

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