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Examining Facilitating Condition and Social Influence as Determinants of Secondary School Teachers' Behavioural Intention to Use Mobile Technologies for Instruction

*Oluwaseun Funmilola Buraimoh[1], Charity H. M. Boor[2], Gboyega Ayodeji Aladesusi[3, *]*

[1]National Teachers Institute, Nigeria
[2]Ahmadu Bello University, Nigeria
[3]University of Ilorin, Nigeria
*Correspondence: E-mail: ruthaladesusi@gmail.com

ABSTRACT

This study examined the social influence and facilitating condition as determinants of secondary school teachers' behavioural intention to use mobile technologies for instruction in Kaduna State, Nigeria. The study adopted descriptive research of the survey type to 958 teachers in Kaduna State, Nigeria. The findings indicated there was strong relationship among teachers' social influence, facilitating condition and behavioral intention to use mobile technologies with ANOVA value of F (2,956) 61.53 $p < 0.05$, F (2,956) 28,786 $p < 0.05$ and F (2,956) 5.152 $p< 0.05$, respectively. The study concluded that teachers' social influence and facilitating conditions influenced their behavioural intention to use mobile technologies for instruction. The implication is that there might be an improvement in teaching and learning at secondary school if mobile technologies are integrated into teaching. The study recommended among others, that secondary school teachers should help themselves by making use of mobile technologies for instructional purposes and shift their focus from using them for fun and entertainment to improving instructional delivery.

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1. INTRODUCTION

In recent years mobile technologies have gained the attention of many users in the education sector. Advances in technology have a greater impact on education and made the education process not be concentrated only on one platform such as in the formal classroom teaching (Danchikov *et al*., 2021). Mobile technologies as an important aspect of our daily lives have improved how people gather information and make appropriate use of such information. Mobile technologies enable the extension of education beyond school timing and confines of the physical classroom. These technologies allow students to have access to learning activities, communicate with their teacher and work with other people through the internet. Mobile technologies are no longer just functional accessories but it is devices used at anytime and anywhere. It is designed learning contexts that allow learning to be situated in a real-world context.

Mobile technologies comprise all forms of portable technologies such as smartphones, laptops, palmtops, personal digital assistants among others. These technologies emerge because of the mobility, portability, connectivity and immediate communication features which they possess. The mobility feature of mobile technology enables teaching and learning to go beyond classroom teaching. Mobile technologies support learning experiences that are collaborative, accessible and integrated beyond the classroom. In the classroom, portable computing technologies give teachers and students new means of interaction. In terms of portability, most pocket-sized mobile devices can be used at any time and any place with adequate connectivity. Connectivity allows the flexible and appropriate link to e-learning facilities and immediate communication through mobile technologies. Mobile technologies are devices that can be used to perform a variety of tasks as these devices are small, self-directed and modest enough to support teaching and learning activities. The ability of mobile technology to enhance teaching and learning is so great that it is currently at the forefront of technological advancement in education Mobile devices can be the best technologies that can be used in mobile learning. Jeon (2022) describes mobile devices as any device that is small, self-directed and able to assist us in every moment of our everyday life, and that can be used in learning. Mobile devices are small enough to be kept in the user's pocket and should be habitually carried by the user. Mobile devices provide suitable learning platforms as they have a lot of applications that teachers and learners can use in their academic activities. Mobile devices can then be explained as digital, easily portable, usually connected to a network and can facilitate any number of tasks including communication, data storage, video and audio, and many more (Zhang *et al*., 2021).

Mobile devices offer learning capabilities to users in such a way that it provides connectivity, situated learning, individualized learning, social interactivity, portability and affordability. Since the last few years, countless improvements have been recorded in the area of mobile and wireless technologies. The evolution of mobile technology has resulted in greater changes in the lifestyles of mobile users around the world, including for learning. The evolution of mobile learning comprises of four-generation, in which the first generation (1G) network includes the use of an analogue cellular network. The rise in the number of mobile subscribers in the past years led to an increase in the voice-oriented wireless telephone. 1G analogue-based communication technology of voice services with no data services were introduced in 1980 and continues up to the evolution of second-generation 2G (Wang, 2021). The 2G mobile phone networks were the next stage in the development of mobile systems which introduced a mobile phone system that was completely digital. 2G mobile system supports both voice and data transmission. The third-generation (3G) systems are intended

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to provide true global mobility and global compatibility for the chosen technology and are in widespread use.

The introduction of the third-generation mobile technology 3G caused a significant increase in the sales of smartphones. The aim is to provide a wide range of services including telephony, paging, text messaging, multi-media messaging, voice messaging, video streaming, and broadband capability. This is done through generic terminals able to access the network via a range of interfaces, involving different technologies and providing multimedia operation (Agrawal *et al*., 2015). The fourth-generation (4G) system is currently being introduced and boasts of a speed higher than 3G. 4G system provides wireless broadband internet access, multimedia messaging services, video chat, mobile television and real-time audio (Manimekalai, 2013). These features attract numerous users especially the young generation.3G and 4G has a major difference which is the removal of circuit switching instead of employing an all-IP network. The increasing demand and increased number of users have forced the communication industry to modify technology from 1G to 4G. The facilities given to the users by the mobile communication industry enabled users to expand their business and communicate worldwide.

Mobile learning is a fast-growing area in the field of ICTs in education and has given rise to new forms of learning in different contexts. Mobile learning supports contextualized learning and as well affords the use of accurate information (Ennouamani *et al*., 2020). Mobile learning increase learning outcome with the availability, ubiquitous and collaboration feature. 98% Finland university students owned mobile phones and as well discover that mobile learning has taken a greater step in the digital revolution. Also, Hirata (2021) revealed that the majority of university students on campus in Japan carry mobile phones, and contemporary students tend to be checking their emails and entering information into their mobile phones. Mobile learning has a lot of benefits and the technology has a greater place for teaching in the nearest future. In Africa, it is reported that there are 649 million people who are mobile phone subscribers and in Nigeria, there are 93 million mobile phone subscribers (Abendin *et al*., 2022). This shows that there is rapid growth in mobile phone subscription and usage in the country. With the introduction of mobile learning in the USA, 28% of their physicians are already using mobile phones in communicating and getting information from their patients (Chase, 2018). Access and ownership of mobile devices are growing rapidly throughout the world, especially among young and old adults (Correa *et al*., 2022). Mobile learning devices such as Personal Digital Assistants (PDA), tablet personal computers, iPad and smartphones have become learning tools with great potential in both classrooms and outdoor learning.

These learning devices are satisfactory and economical tools affordable compared with normal pc, effective and easy to use. Mobile devices can provide a level of reach, scope and immediacy that is largely unattainable through the traditional classroom environment. Also, mobile devices such as iPod, MP3s, Smartphones and PDAs can provide opportunities to respond to the need of this generation. For example, PDAs was used by nursing students to enable them to access clinical expertise and resources as well as record their clinical experiences. The students were able to carry their PDAs with them to connect and download when necessary. The emergence of technologies leaves a significant impact on educational development and the acceptance by teachers has a greater influence on the successful introduction of mobile learning. Two important aspects of teachers' perception of the use of technology have been found important. The first aspect that influences the adoption of new technology is the beliefs held by the teachers (Bruggeman, 2021). Specifically, the value of the new technology and effort needed to learn to use the new technology through performance expectancy, effort expectancy, social influence and facilitating conditions have

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been established as playing a significant role in the use of technology (Walrave, 2021). The second major aspect seen to influence the use of this technology is teachers' gender, years of experience, qualifications and area of specialization and this is beyond the scope of this present study. Social influence is the degree to which someone thinks that others believe he or she should use a new system (Oldeweme *et al*., 2021).

In this study, social influence is the extent to which teachers perceive that other people can influence them in the use of mobile technology for teaching. Social influence can originate from family, peer group, superior at work, newspapers, radio, television and other media (Sadri *et al*., 2021). Social influence is very important in this study since our decision in life can be influenced by one person or the other. Facilitating conditions is the degree to which an individual believes that an organization and technical infrastructure exists to support the use of a system (Kasri & Yuniar, 2021). Facilitating conditions is the availability of resources to support the adoption and usage of mobile technology. In this study, the resources include the availability of mobile technologies, reliable network connection, recharging facilities and other related resources. However, teachers' decision to use mobile technology for teaching can be influenced through an adequate supply of support services and resources in schools. The integration of mobile technology into teaching and learning is expected to have a great influence on the performance of teachers in their teaching activities. However, it is the acceptance of teachers that has the potential to have the greatest influence on the successful introduction of mobile learning. Criollo-C *et al*., (2010) stated that the presence and accessibility of mobile technologies do not guarantee that their potential will be realized in educational contexts. But it should be noted that the success of mobile learning depends on human factors in the use of mobile devices. The need to understand factors that contribute towards teachers' perception to integrate mobile technologies into teaching is critical for successful implementation in a given context. Hence, this study aims to examine examining facilitating conditions and social influence as determinants of secondary school teachers' behavioural intention to use mobile technologies for instruction in Kaduna State, Nigeria.

The main purpose of this study was to social influence and Facilitating conditions as determinants of secondary school teachers' behavioural intention to use mobile technologies for instruction in Kaduna State, Nigeria. Specifically, the study was to: (i) Explore Social Influence as a determinant of secondary school teachers' behavioural intention to use mobile technologies for instruction; (ii) Examine facilitating as a determinant of secondary school teachers' behavioural intention to use mobile technologies for instruction and; (iii) Examine the behavioural intention of secondary school teachers on the integration of mobile technologies for instruction. The hypothesis is $H0_1$, in which there is no significant relationship among secondary school teachers' social influence, facilitating condition and their behavioural intention to use mobile technologies for instruction.

2. METHOD

Proportional sampling techniques were used to allocate many respondents in each school based on their estimated population using Israel Model in 2013. The instrument for data collection was an adapted questionnaire. Descriptive and Inferential statistics were used to answer the research question and test the stated hypotheses with the aid of statistical product and service solution (SPSS) version 20.0 at a 0.05 level of significance. This study is descriptive research using the cross-session survey method. The population for this study will consist of all secondary school teachers in Kaduna State. The target population consists of teachers in four educational zones out of the 12 educational zones in Kaduna State. The selected educational zones consist of Zaria, Kaduna, Sabon Tasha and Giwa. The four zones

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were purposively selected due to their proximity to good network connections. This decision was taken because there are some schools within the educational zones in the State that do not have network connectivity. The total number of teachers in the four educational zone is 4939. A proportional sampling technique will be used to allocate number of respondents to each zone using the Israel Model (2013) sample size at ±5% precision level (See Appendix II). Descriptive research type was adopted, using four-point Likert scale response modes: Strongly Agree (SA=4), Agree (A=3), Disagree (D=2), and Strongly Disagree (SD=1).

2.1. Validation of the Research Instrument

The instrument was validated by the researcher's supervisor and three other lecturers in the Department of Educational Technology, Faculty of Education, University of Ilorin, Nigeria. They helped to review the questionnaire to check the clarity of language and ensure it is relevant to the study. Their suggestions and corrections were noted for the final draft of the instrument. The reliability of the instrument was determined by administering 40 copies of the questionnaire to teachers in the Rigachukun educational zone of Kaduna State and the Cronbach Alpha technique of reliability statistics was used to analyze the result. The reliability of the instrument was determined based on sections of the variables in the instrument. The Cronbach's alpha values for performance expectancy was 0.79, social influence was 0.54, facilitating conditions was 0.66 and behavioral intention to use mobile technologies for instruction was also at 0.67 respectively.

2.2. Procedure for Data Collection

We will collect a letter of introduction from the Department of Educational Technology before visiting schools in the four educational zones to administer the questionnaire to the teachers. We will seek permission from the authorities of the schools concerned before administering the instrument. We and four research assistants will administer the questionnaire to the respondents and retrieve the completed questionnaire for further analysis. The respondents will not be coerced and their statements will be kept confidential. Also, we will not ask the participants to mention their names to preserve their privacy.

2.3. Data Analysis Techniques

The data obtained through the questionnaire will be analyzed and interpreted using descriptive and inferential statistics. Means and percentages will be used to answer research questions. Hypotheses will be tested using regression analysis. Data collected will be coded and analyzed using IBM Statistical Package for Social Sciences (SPSS) version 20.0 at a 0.05 level of significance.

3. RESULTS AND DISCUSSION

3.1. Research Question 1: What Effect does Social Influence Have on the Behavioural Intention of Teachers to Use Mobile Technology for Teaching?

The intention of social influence and teacher's behaviour to use mobile technology teaching is shown in **Table 1**. **Table 1** presents the results of the social influence on the behavioural intention to use mobile technology for teaching. The results revealed the mean score on the effect of social influence on the behavioural intention of teachers to use mobile technology for teaching. Using a benchmark of 2.50 for each item, it can, therefore, be deduced that most secondary school authorities will support the use of mobile technologies for teaching with a mean score of 3.41. The table further revealed that mass media like television, radio and newspaper influenced secondary school teachers on the use of mobile

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technologies for teaching and that some of my friends can influence my use of mobile technologies as a means of improving my teaching with a mean score of 3.25 and 3.22 respectively. The lowest mean score was 3.12 with the statement that people might influence my behaviour that I should use mobile technologies for teaching. However, the grand mean score for the effect of social influence on secondary school teachers' behavioural intention was found to be 3.35. Using 2.50 as the average benchmark, it can then be inferred those social influences affect secondary school teachers' behavioural intention to use mobile technologies for teaching.

3.2. Research Question 2: What Influence does Facilitating Conditions Have on Teacher's Behavioural Intention to Use Mobile Technology for Teaching

The analysis on the influence of facilitating conditions on teachers' behavioural intention to use mobile technology. The results revealed that the mean score on the statement that all the necessary resources to use mobile technologies for teaching was 3.20. The mean score on the statement that the teachers know of mobile technologies was 3.18. The table further revealed that the teachers received necessary technical support when they have a problem in using any mobile technologies applications was 3.16. The lowest mean score was 3.11 against the statement that the school authority will provide necessary mobile technologies in my school. The influence of facilitating conditions on behavioural intention to use mobile technology for teaching is shown in **Table 2**. However, the grand mean score on the influence of the facilitating condition on teachers' behavioural intention to use mobile technologies for teaching was found to be 3.16 which is greater than the benchmark of 2.50 it can then be inferred that facilitating conditions influences teachers' behavioural intention to use mobile technologies for teaching.

Table 1. Social influence and Teachers Behavioural Intention to Use Mobile Technology Teaching.

S/N	Social Influence	Sum	Mean	St. Deviation
1	People might influence my behaviour that I should use mobile technologies for teaching	2929	3.12	0.680
2	My family members can influence my use of mobile technologies for my teaching	3000	3.20	0.626
3	Some of my friends can influence my use of mobile technologies as a means of improving my teaching	3006	3.22	0.614
4	Mass media like television, radio and newspaper have influenced me on the use of mobile technologies	3056	3.25	0.576
5	The school authority will support the use of mobile technologies for teaching in my school	3075	3.41	0.667
	Grand Mean		3.35	

Table 2. Influence of Facilitating Condition on Behavioural Intention to Use Mobile Technology**.**

S/N	Facilitating Conditions	Mean	Std. Deviation
1	I have all the necessary resources to use mobile technologies for teaching	3.20	0.63
2	I know of mobile technologies	3.18	0.59
3	I have the necessary technical support when I have a problem using any mobile technologies applications	3.16	0.52
4	The school authority will provide necessary mobile technologies in my school	3.11	0.44
	Grand Mean	3.16	

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3.3. Research Question 3: What Influence does Behaviour Intention Have on the Integration of Mobile Technologies for Teaching

The influence of behavioural intention on the integration of mobile technology for teaching is shown in **Table 3**. **Table 3** presents the results on the effect of the behavioural intention of teachers on the integration of mobile technologies for teaching. The findings showed that secondary school teachers recommend mobile technologies to their fellow teachers and they intend to increase the use of mobile technologies with the mean score of 3.40 and 3.20 respectively. It was also revealed that secondary school teachers plan to use mobile technologies frequently with a mean score of 3.19. The lowest mean score was 2.0 against the statements that the teachers prefer to use mobile technologies for teaching in their school. However, using a benchmark of 2.50, the grand mean score on the effect of the behavioural intention of teachers on the integration of mobile technologies for teaching was 2.94 which is greater than the benchmark it can then be established that the behavioural intention of the teachers can affect the integration of mobile technologies for teaching.

Table 3. Influence of Behavioural Intention on the Integration of Mobile Technologies for Teaching.

S/N	Behavioural Intention	Sum	Mean	St. Deviation
1	I prefer to use mobile technologies for teaching in my school	1876	2.00	0.000
2	I plan to use mobile technologies frequently	2987	3.19	0.635
3	I intend to increase my use of mobile technologies	3002	3.20	0.588
4	I will recommend mobile technologies to my fellow teachers	3004	3.40	0.64
	Grand Mean		2.94	

3.4. Hypothesis H01: There is No Significant Relationship among Secondary School Teacher's Social Influence, Facilitating Condition and their Behavioural Intention to Use Mobile Technologies for Instruction

To test for a relationship between predictors variables of social influence, facilitating conditions and their behavioral intention on the criterion variable behavioral intention, the Multiple regression analysis was carried out using the enter method. The results derived from the analysis are shown in **Tables 4, 5,** and **6**. From the result in **Table 4**, the Adjusted R Square (0.017) has a poor fit. This revealed that the constructed multiple regression models of the independent variables (performance expectancy, effort expectancy, social influence and facilitating condition) account for .017% variance in the dependent variable (behavioral intention). The results of the analysis of variance (ANOVA) for the model are as shown in **Table 5**. The results of the analysis of variance (ANOVA) which revealed that $F(2, 956) = 5.152$, $p < 0.05$, indicated a statistically significant relationship (less than 0.05) between the independent variables (social influence and facilitating conditions) and dependent variable (behavioral intention). Based on this significant relationship, the coefficient for the Beta weight for the amount of standard deviation unit of change in the dependent variable for each standard deviation unit of change in the dependent variable was calculated. The results are as shown in **Table 6**. The standardized coefficients in **Table 6** revealed that;

(i) The Independent variable (social influence) value has the strongest positive effect on behavioral intention because the Beta (β = 0.123, 0.001) shows a statistically significant relationship. After all, the significant value was less than the 0.05 alpha value.

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(ii) The independent variable (facilitating condition) has the next stronger positive effect on behavioral intention because the beta (β = 0.022, 0.007) shows a statistically significant relationship. After all, the significant value was less than the 0.05 alpha value.

(iii) To bring out the correlation between the variables of social influence, facilitating condition and behavioral intention.

Table 4. Adjusted R square value for the Model Summary on Behavioral Intention.

Model	R	R square	Adjusted R square	Std. An error of the Estimate
1	0.147[a]	0.022	0.017	0.3649148

a. social influence and facilitating condition.

Table 5. ANOVA for Independent Variables on Behavioral Intention.

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	2.744	2	0.686	5.152	0.000[b]
Residual	124.241	956	0.133		
Total	126.985	958			

a Dependent variable: behavioral intention

b Predictors: (constant), social influence and facilitating condition

Table 6. Coefficient of Independent Variables on behavioral Intention.

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.422	0.136		17.815	0.000
SI	0.098	0.029	0.123	3.407	0.001
FC	0.020	0.031	0.022	0.633	0.007

4. DISCUSSION

The influence that social influence has on the behavioural intention of teachers to use mobile technology for teaching was examined using research question four. Such social influence includes school authority will support the use of mobile technologies for teaching in my school, mass media like television, radio and newspaper have influenced me on the use of mobile technologies, my family members can influence my use of mobile technologies for my teaching among others.

Social influence is the extent to which teachers perceive that other people can influence them in the use of mobile technology for teaching. This study agreed with the previous findings of who found that social influence has a significant impact on students' behavioural intention to use Moodle and students' behavioural intentions is a powerful predictor of the use of the e-learning system. The findings of this study also concur with the previous findings investigated the validity of UTAUT using 313 intended users of Internet banking in China, the result suggested that performance expectancy and social influence are strong predictors of behavioural intention.

Based on the findings of research question 2 that revealed that ffacilitating conditions influences teachers' behavioural intention to use mobile technologies for teaching. Such facilitating condition is necessary resources to use mobile technologies for teaching, the knowledge about mobile technologies, necessary technical support. The mean score established that facilitating conditions influences teachers' behavioural intention to use

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mobile technologies for teaching. However, teachers' decisions to use mobile technology can be influenced by the availability of support services and resources. This study agreed with the previous study who found out that facilitating conditions and behavioural intentions determine students' use of e-government services. Also, the use of UTAUT model to examine nurses' behavioural intentions towards the use of Medical Teleconferencing Application, the study revealed that performance expectancy and effort expectation are high predictors of behavioural intention but social influence prediction power is low. In a cross-cultural study of Information Technology adoption found that performance expectancy, effort expectancy and social influence predicts use intention which is contrary to the present findings.

The effect of behavioural intention on the integration of mobile technologies for teaching was examined. Such effect includes I plan to use mobile technologies for technologies, I plan to use mobile technologies frequently in my school, I intend to increase my use of mobile technologies among others. The result of the mean score on behavioural intention established that behavioural intention affects teachers' integration of mobile technologies in teaching. These findings agreed with the findings who found behavioural intention to significantly predict the use of mobile technology. Relationships among secondary school teachers' social influence, facilitating conditions and their behavioural intention to use mobile technologies were examined. The results of the findings revealed that there is a strong relationship among secondary school teachers' behavioural intention, social influence and facilitating conditions to use mobile technologies for teaching. These findings agreed with the findings who found behavioural intention to significantly predict user behaviour. Also, an empirical study suggests that performance expectancy, effort expectancy and social influence significantly predict managers' intention to engage in knowledge sharing using web 2.0.

5. CONCLUSION

The study concluded that there is a strong relationship between secondary school teachers' behavioural intention, social influence and facilitating conditions to use mobile technologies. Based on the findings and conclusion of this study, the study recommends that secondary school teachers in the selected education zones should be given adequate training and a better facilitating environment on the use of mobile technologies for effective instructional delivery.

6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirmed that the paper was free of plagiarism.

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