SURVEY OF BELIEF AND ATTITUDE ON PRE-SERVICE SCIENCE TEACHERS' BEHAVIOURAL INTENTION TOWARDS INFORMATION TECHNOLOGY USE FOR TEACHING IN A NIGERIAN UNIVERSITY

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Abstract
This study investigated the influence of pre-service teachers' beliefs and attitudes on behavioural intention towards information technology (IT) use for teaching. The study used a descriptive survey method and a questionnaire to gather the data of the study. The sample of the study comprises of pre-service science teachers' at various levels of study. One hundred and ninety-two students were purposively used as respondents. The instrument used for the study was an adapted one but subjected to reliability check. A cronbach alpha computed to ascertain the internal consistent of the instrument yielded .76, .82 and .80 on the three variables (belief, attitude and behavioural intention) of the study. Based on the theoretical framework of the study, three alternate hypotheses was generated and tested. Regression and Analysis of Variance were used to analyse the data. The findings of the study showed that pre-service teachers' behavioural intention toward information technology use can be explain by their belief and attitude. Though, pre-service teachers' belief stood to be the strongest determinant. Based on this findings the study suggest among others the deployment of IT tool for teaching pre-service teacher so as to sustain their belief about ease of use and usefulness of IT tool for teaching when they get to the field of practice.

Keywords: Belief, attitude, behavioural intention, pre-service teachers, information technology

Introduction
The use of IT in education is so tremendous in the recent time so much that all over the world educational institution are increasingly using different range of IT tools for supporting classroom instruction and for educational administration (Teo, Luan & Sing, 2008). Though, IT use in education is growing, but its use in education are more felt for administrative than for implementing the curriculum (Becker, 2001; Teo et al, 2008).

Given the current role of IT in education, it is expected that in-service teachers should be adequately equipped with IT skill from their training school in the pedagogical use of different IT application for implementing the curriculum. Arising from this notion, pre-service teacher attitude and intention towards IT use is receiving greater attention among researchers' in the recent time more than ever before. For instance, Anderson, Groulx and Maninger (2011) conducted a study was conducted to probe pre-service teachers technology related belief and intention toward technology use for classroom instruction. The study was carried out because possession of IT skill was not sufficient as a reason to predict or prompt teacher to support his/her teaching with IT tools (Anderson et al, 2011).

Another related study was carried out by Cuhadar (2014) on factor that influence pre-service teachers' acceptance of Tablet PC in Turkey revealed that preservice teachers' demonstrate to accept and use Tablet PC, which in-turn influence their positive attitude and their intention toward its use for instructional related activities.

Studies continue to show the relationship between belief and intention regarding the use of technology in the recent time. Some of these studies include Teo (2009) study on intention of preservice teacher use of technology, using structural equation modeling approach; Bozdogan and Ozen (2004) study of technology factors affecting pre-service ELT teachers' perceived IT self-efficacy; Oigara and Wallace (2012) study on modeling training and mentoring teacher candidate's use of Smart board technology; Wong, Osman, Goh and Rahmat (2013) study on understanding student teachers' behavioural intention toward technology use for teaching. These studies were conducted due to empirical evidence of the influence attributed to belief and attitude as a precondition for acceptance of new innovation in teaching and learning.

Though, it is important to understand factor predicting pre-service teachers' intention toward IT use because of their professional role after graduation, such study has not been given deserve attention in the present setting of this study. This explains the imperative of understanding pre-service teacher belief, attitude and intention towards IT use for teaching before they get to the field of practice.

Literature Review

Attitude refers to an expression of favor or disfavor towards something, a person, place or event. Attitude can be positive or negative and influences the way and manner a person reacts or responds to another person, something or event. Attitudes are determined by the analysis of the information regarding the result of an action and by the positive or negative evaluation of these results (Ajzen & Fishbein, 1980; Yusuf & Balogun, 2011).

There is a common saying that attitude determines altitude. Studies have established close links between teachers' attitude and their use of ICT. More positive attitude towards the computer were associated with a higher level of computer experience (Dyck & Smitter, 1995; Teo, 2008). Students' confidence on IT can also be explained through the attitude and behavior of their teacher towards their use of IT tools. Teachers' behavior to a greater extent has a lasting influence on students' confidence which in-turn affects attitude towards IT as they are seen as a role model to their students (Derbyshire, 2003; Yusuf et al. 2011). The literature revealed that inadequate training and experience is one of the main reasons why teachers resist the use of technology in their teaching. This also reflects in teacher's negative attitude towards computer and technology as a whole.

Attitude is a major predictor of future computer use. Lee (1997); Yusuf et al. (2011) study indicated the importance of appropriate responses to the trainee's feeling about IT as one of the factors critical to success. Thus, there is the need to take care of the emotional needs of pre-service teachers' as attitude is a major predictor of future IT use (David, 2013). As a result of this, a lot research on the attitude of both students and teachers towards the use of ICT in teaching has being done. For example, Becta (2004); David (2013) found that negative attitude is a barrier towards integration of IT in teaching and learning while Rhoda and Gerald (2000); David (2013) observed that positive attitudes towards IT use are widely recognized as a necessary condition for effective computer use in teaching and learning. Also, Selewyn (1999);

David (2013), observed that integration of IT in an education environment depends on teachers' and students' attitude towards its use. It therefore appears that teachers' and students' attitudes may influence adoption of IT in the teaching and learning process. Therefore, pre-service teachers' attitude towards the integration of IT in their future classroom is very important.

Studies about anticipated outcomes of technology use have shown that self efficacy beliefs to a greater extent determined outcome expectations, because those who are confident always anticipate success in what they do (Pajaries, 2002; Anderson et al., 2012). Belief according to Keller (1983) is related to perception that an individual has on the importance of a task for the accomplishment of future goal. Behavioural beliefs of pre-service teacher on IT use for teaching have been a subject of study in the recent time, Teo (2009) in a study reported that behavioural belief of perceived usefulness and perceived ease of use as propounded by Davis (1989) have been found to be of significant reason for pre-service teacher behavioural intention toward technology use.

Earlier, Ajzen and Fishbein's (1980) postulated a theory of reason action (TRA), which stated that individual intention to perform a specific task, is determined by beliefs and attitudes which altogether predict the behavioural intention of an individual. Teo. (2009) defined belief as 'the individual estimated probability that performing a given behavior will result in a given behavior". In a study of Davis (1989) submitted that perceived usefulness and perceived ease of use are function of belief that enable one to form a favourable attitude and intention to accept to use a technology.

Successful use of information technology for classroom instruction depends on several factors which include behavioural belief and positive attitude of teacher (Yuen & Ma, 2002; Teo, Luan & Sing 2008). This study therefore, set to reconfirm this assertion in order to determine whether the finding could be similar or otherwise, most especially when literature revealed that there are conflicting results arising from studies on what inform users decision on IT use. For the purpose of this study, the conceptual framework in fig 1 is generated to guide the study.

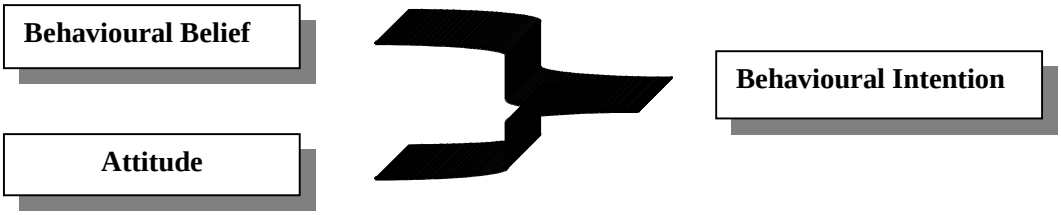


Figure 1: The conceptual framework of the study

Based on the framework in fig 1 above the following alternate hypotheses were generated to be tested through the data collected for the study.

Hypotheses of the Study

H_1: Attitude of Pre=service teachers will positively influence their behavioural intention toward Information technology use.

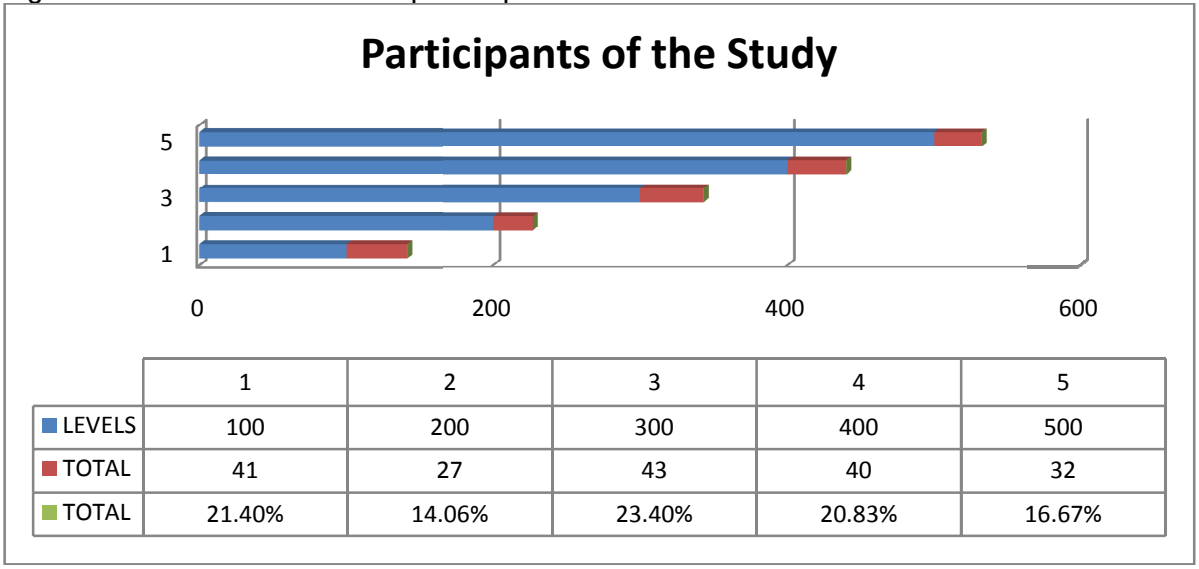
H_2: Belief of pre-service teacher will positively influence their behavioural intention toward information technology use.

H_3: Pre-service teacher level of study will influence their behavioural intention toward Information technology use.

Research Methodology

The study was prosecuted with descriptive survey method. The major construct of the study involves pre-service science teachers' behavioural beliefs and attitudes towards IT as independent variable, while behavioural intention toward use is the dependent variable. The study involves one hundred and ninety-two (192) pre-service students at various levels of studies. The participants were purposively selected for the study. Among the respondents, forty-one (21.40%) were in 100 level, twenty-seven (14.06%) in 200 level, forty-three (23.40%) in 300 level, forty (20.83%) in 400 level and thirty-two (16.67%) in 500 level respectively, as presented in figure 1 below. An adapted instrument was used for gathering the data of the study. The instrument was subjected to face and content validity check. Also, the instrument internal consistency (reliability) was computed, the cronbach alpha of .76, .82 and .80 were obtained for behavioural belief, attitude and behavioural intention. The hypotheses one and two of the study were subjected to regression analysis, while the third hypothesis was analyse with anova

Figure 1: The distribution of participants based on their levels of studies



	1	2	3	4	5
LEVELS	100	200	300	400	500
TOTAL	41	27	43	40	32
TOTAL	21.40%	14.06%	23.40%	20.83%	16.67%

Table 1: Summary of the model of the study

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.666[a]	.443	.436	5.25675

a. Predictors: (Constant), belief, attitude

Table 2: Multiple Regression analysis of factors influencing pre-service teachers' IT use

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistic	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	3.250	2.186		1.487	.139	522	1.92
	attitude	.088	.062	.124	1.431	.155	522	1.92
	belief	.595	.089	.574	6.653	.000		

P <0.001

a. Dependent Variable: intention

Table 3: Analysis of variance of pre-service teacher level of study and behavioural intention to IT use

Years of study	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	90.951	27	3.369	1.743	.023
Within Groups	228.090	118	1.933		
Total	319.041	145			

Hypotheses Testing

Multiple regression analysis was used to analyse the hypotheses of the study. Before computing the analysis, assumption of multiple regression analysis was checked. In doing this, collinearity diagnostic were performed to check that the data was free from multicollinearity. The result shows that the assumption has not been violated. To ascertain this, we check at the VIF value in Table 2. The value shows that all VIF were greater than 0.10 which is above the cut-off point (Pallant, 2007). The data has satisfied all assumption of regression analysis

Result

Table 1 above shows that the multiple correlation coefficient (R), of the combination of predictors is .66 and the adjusted R^2 is .44, this finding suggest that (44%) of the variance in behavioural intention of pre-service science teacher toward IT use can be predicted from combination of their belief system and their attitude. By implication there are variables that are not capture which equally responsible for pre-service teacher behavioural intention aside belief and their disposition.

The result of hypotheses tested for the study is hereby presented: The first hypothesis which states that H1: Attitude of Pre=service teachers will positively influence their behavioural intention toward Information technology use showed effect size of (β=.124), $p< 0.05$, with this result, the hypothesis stand validated. The second hypothesis which states that H2: Belief of pre-service teacher will positively influence their behaviooural intention toward information technology use showed effect size of (β=.574), $p< 0.05$, the hypothesis was equally stand validated. The third hypothesis H3 that Pre-service teacher levels of study (students in 200,300,

400, & 500level) will influence their behavioural intention toward Information technology use is rejected. The analysis of variance computed in table 3 revealed $F(27,118)=1.743$, $p<.05$. This finding suggest that there is no significant different in pre-service science students behavioural intention towards IT use in respective of their level of study.

Discussion

The finding of this study has provides empirical evidence to factors that influence pre-service science students behavioural intention toward information technology use for teaching function in the setting of this study. The finding revealed that behavioural belief stand to be the strongest determinant of pre-service teacher behavioural intention. This finding validates and supports Davis (1989), Teo (2008) study on factors that determine users' information system use which revealed that users' adoption of information system was predicted by student behavioural belief, that is, users' perceived ease of use and their perceived usefulness of the system. The finding also support Yuan and Ma (2009); Teo, Luan and Sing (2008) findings which posited that successful information system use for classroom instruction depend majorly on user behavioural belief as well as attitude develop toward information system.

Similarly, the study also confirm the finding of Ajzen and Fishbein (1980) that reported the reason for an individual behavioural intention as a function of their belief as well as attitude toward such situation. The study also revealed that attitude was an important factor when it comes to the use of IT for teaching. This finding was in agreement with Selwyn (1999); David (2013) finding which opined that integration of information technology in educational environment will largely depend on students and teacher attitude towards usage. The study also support Lee (1997) finding which reported that user attitude was a precondition for future use of computer. In furtherance to that, Yuen and Ma (2002); Teo, Luan and Sing (2009) study reported similar finding which support the present study on the influence of behavioural belief and attitude as a significant factor to integration of IT in teaching.

It is important to note that behavioural belief is a function of an individual conviction or opinion of usefulness and ease of use of a process or tool. In this study pre-service science teacher has express their opinion about usefulness and ease of use of information technology which is the product of their belief. This belief greatly influences their behavioural intention toward future deployment of IT for their professional practice. Of note is also that 44% of variance of pre-service science teacher behavioural intention toward IT can be explains by the collective influence of their belief and attitude. What this suggest is that there are other salient factor that also predict pre-service student behavioural intention towards IT for professional practice. The study therefore suggest further understanding of factors that may predict pre-service teacher behavioural intention toward use of IT for teaching

Recommendations

Based on the finding of this study, the following recommendations were made that:

(i) The government should increase provision of IT equipment and tools for the training of pre-service teachers so as to encourage and equip them for the task they will engage in after graduation. This becomes important because we are in the knowledge society where one of the skill requirements to survive is self-efficacy in the use of information technology.

(ii) The teacher educators should intensify their effort in the deployment of IT tools for the training of teachers so as to increase students' behavioural belief on ease of use and usefulness of IT for professional practice when they get to the field of practice.

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