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Relationship between Teacher Trainees Subjective Norms and ICT Integration in Primary School Education in Rift Valley, Kenya

Lilian Chemutai Kimaiyo

Lecturer, Department of Educational Psychology,
Tom Mboya University College, Kenya

Abstract:

The purpose of this study was to investigate the Relationship Between Teacher Trainee Subjective Norms and ICT Integration in Primary School Education in Rift Valley, Kenya. The study employed correlation research design. The researcher purposely selected five public TTCs in former Rift Valley Province for the study. Stratified simple random sampling was used to select a total of 357 participants. Data was collected from trainee teachers in five TTCs, using a teacher trainee questionnaire. Descriptive statistics and inferential statistics were employed to analyze quantitative data. The descriptive statistics involved the use of frequencies, means and standard deviation, while the inferential statistics was Pearson Product Moment Correlation Coefficient. Data was presented in form of texts and tables. The findings showed that trainee teacher subjective norms significantly influenced ICT integration in teaching and learning at 0.05 level of significance.

Keywords: Teacher trainee, subjective norms, ICT integration

1. Introduction

One of the goals for integrating ICTs in education is to enhance teaching and learning practices thereby improving quality of education (Higgins, 2003; Madumere-Obike & Imgbi, 2012). ICT use in education encourages learners to move away from learning characterized only by memorization of facts towards a process of knowledge creation (Steyn & Van Gruene, 2014; UNESCO, 2011). According to Dede (2009) ICT skills prepare pupils for the workplace where they will be required to collaborate with peers across the world to produce new intellectual work that adds value to society. Recognizing that an ICT literate workforce is the foundation on which Kenya can acquire the status of knowledge-based economy by 2030, the Government plans to make education the natural platform for equipping the nation with these skills in order to create a dynamic and sustainable economic growth (Kenya, MOEST, 2013). Laptops will be provided to primary school children to enable them acquire digital skills at a young age. These skills will be used to access information which they will turn into knowledge. Trainee teachers, soon to be teachers are the implementers of the laptop project, and will actually do the groundwork in terms of equipping students with these very vital IT skills. This study investigated the influence of teacher trainee subjective norms on integration of ICT of in future teaching practices.

2. Literature Review

Subjective norms describe a person's perceptions of whether other people believe they should or should not perform a particular behavior (Ajzen, 1991). Within a school environment, teachers' decisions to integrate computer technology might be affected by the opinions and suggestions of other people who are important to them (Ma et al., 2005). In this study Subjective norms are opinions and suggestions of superiors (administrators), peers (colleagues), and pupils about computer use. Ajzen and Fishbein (1977) defined subjective norms as a person's perception that most people who are important to them think they should or should not perform the behavior in question. People will generally intend to perform a behavior when they have a positive attitude toward it and when they believe that important individuals think they should do so (Ajzen, 1991). Subjective Norms and image are important determinants of behavioral intentions because they reflect the influence of others and the importance of having others think positively of them. If diligent personalities think that significant others believe that the technology should be used, they will form stronger intentions to use the technology (Devaraj, Easley, & Crant, 2008). Within a school environment, teachers' decisions to integrate technology might be affected by the opinions and suggestions of other People who are important to them (Ma et al., 2005). This study identifies Subjective norms as superiors (administrators), peers (colleagues), and pupils. In this study, the subjective norms are based on the assumption that administrators and colleagues might feel that the adoption of computer technology improves students' learning (Ajjan & Hartshorne, 2008). Similarly, pupils may also influence the adoption of technology because they are comfortable using it and might expect its integration into their Classroom environment (Sadaf, et al., 2012; Shihab, 2008). Earlier studies have found subjective norms to be a key factor affecting teachers'

intentions to use technology (Sugar, Crawly, & Fine, 2004; Teo, 2009). It is expected that the subjective norms of pre-service teachers are positively related to their intentions to integrate computer technology in primary education in Kenya. Subjective Norm refers to a person's perception of normative beliefs (for example, perceived pressures and motivation to pursue) and how most people who are important to him/her think he/she should or should not perform the behavior in question (Fishbein & Ajzen, 1975, p. 302; Huang, Davison, & Gu, 2008). According to TRA, a person's performance of a specified behavior is determined by his or her Behavioral Intention (BI) to perform the behavior, and BI is jointly determined by the person's Attitude towards using and Subjective Norm concerning the behavior in question. If a teacher thinks his/her family, education officials, the head teacher and friends accept and appreciate him/her using computer technology, he or she is likely to use it.

3. Methodology

This study was done in five public Teacher Training Colleges in former Rift Valley Province of Kenya. The research population for the study was all teacher trainees in public teacher training colleges in Rift Valley. The Pearson Product Moment Correlation Coefficient was used to establish the relationship between independent and dependent variable and multiple regression was used to test the study hypothesis. Stratified simple random sampling was used to select a total of 357 participants. Data was collected from trainee teachers in five Teacher training colleges, using a teacher trainee questionnaire. Student teachers were presented with subjective norms statements about computer as a tool of instruction adapted from a previous study by Sadaf, Newby and Ertmer (2012). The scale uses a 5-point Likert scale format (from 1-strongly disagree to 5-strongly agree). Cronbach's alpha was calculated to determine internal consistency.

Teacher education programs in Kenya require student teachers to be involved in teaching practices for four weeks in the first year and two sessions of four weeks each during their second-year academic career (Government of Kenya, 2004). Since this offers limited opportunities for student teachers to actually experience classroom computer use, and also due to the fact that the computer project is not yet fully in place in most schools, student teachers reported prospected educational computer use was examined as a dependent variable. The Prospective Computer Use Scale was used. This was derived from the 'Computer Use Scale' of van Braak et al. (2004). The scale uses a 5-point Likert scale format from strongly disagree 1 to strongly agree - 5. Cronbach's alpha was calculated to determine internal consistency.

4. Results

4.1. Factor analysis for Social Norms of Computer as a tool of instruction

From the factor analysis of social norms of computer as a tool of instruction scale, the KMO was found to be 0.859 and the Bartlett's Test of Sphericity was significant ($p < .05$). The principle component analysis and Varimax rotation were performed and statements with factor loadings lower than 0.50 were eliminated as postulated by Hair *et al.*, (2006). The varimax rotated principle component matrix resulted in one component loading in social norms of computer as a tool of instruction that explained 68.47 percent of the variance with Eigen values larger than 1 (Table 1). All the statements had a loading value of above 0.50 and no item was deleted. The statements were computed and named social norms to be used in the subsequent analysis.

Rotated Component Matrix ^a	Component
	1
My peers will be using computer technology in their classrooms	.805
My peers think I will benefit from using computer technology in my future classroom	.768
My head teacher will think it is important to use computer technology in my classroom	.835
My pupils will think it is important to use computer technology in my classroom	.840
My district education officer will think it is important to use computer technology in my classroom	.885
KMO= .859	
Bartlett's Test of Sphericity=.000	
Eigen value=1.00	
Percentage of variance Explained=68.47	

Table 1 Social Norms of Computer as a Tool of Instruction

Extraction Method: Principal Component Analysis

a. 1 Components Extracted

4.2. Descriptive Statistics of Social Norms about Computer as Tool of Instruction

During the study, the teachers' perception on social norms about computer as tool of instruction varied as summarized in Table 1. On the statement that peers will be using computer technology in their classrooms ($n = 204$, 65.6%) agreed, ($n = 73$, 23.5%) disagreed, while ($n = 34$, 10.9%) were undecided. This was supported by a mean score of 3.5. Most of the respondents ($n = 236$, 72.7%) agreed that peers think they will benefit from using computer technology in classroom, ($n = 54$, 17.3%) disagreed while ($n = 31$, 10%) were undecided. This was supported by a mean score of 3.76.

During the study majority of the respondents ($n = 221$, 71.1%) agreed that the head teacher thought it was important to use computer technology in their classroom, ($n = 60$, 19.3%) disagreed while ($n = 30$, 9.6%) were undecided as shown with a mean of 3.7. Most of the respondents ($n = 243$, 78.1%) agreed that pupils will think it is important to use computer

technology in their classroom, (n= 48, 15.4%) disagreed, while (n= 20, 6.4%) were undecided as shown with a mean of 3.85. Most of the respondents (n= 232, 74.6%) agreed that the county education officer thought it was important to use computer technology in their classroom, (n= 51, 16.4%) disagreed, while (n= 28, 9%) were undecided. This was supported by a mean score of 3.81.

Statement	Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree		Mean	Std Dev
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%		
My peers will be using computer technology in their classrooms	61	19.6	143	46.0	34	10.9	36	11.6	37	11.9	3.50	1.26
My peers think I will benefit from using computer technology in my future classroom	83	26.7	143	46.0	31	10.0	34	10.9	20	6.4	3.76	1.15
My head teacher will think it is important to use computer technology in my classroom	79	25.4	142	45.7	30	9.6	38	12.2	22	7.1	3.70	1.18
My pupils will think it is important to use computer technology in my classroom	90	28.9	153	49.2	20	6.4	28	9.0	20	6.4	3.85	1.13
My county education officer will think it is important to use computer technology in my classroom	96	30.9	136	43.7	28	9.0	32	10.3	19	6.1	3.83	1.16

Table 2: Descriptive Statistics of Subjective Norms about Computer as Tool of Instruction

From the descriptive statistics, trainee teachers' felt significant others, for example peers, head teacher, pupils and County Education Officer would wish them to use computer technology in their classrooms.

4.3. Correlation of Scores of Trainees Teachers Subjective Norms and Their Prospective Computer Technology Integration

Results of the study indicate that there was a strong positive correlation between student teachers' subjective norms and their prospective computer technology integration ($r=.573$, $n=311$, $p<.05$) as shown in Table 2. This implies as the student teachers' subjective norms improved, the integration of computer technology increased. The implication is that the four significant others, members of the environment, who were identified impacted on the teacher's intent to use computers in teaching. Subjective norms reflect a person's choice to behave based on the influence of others. Policy makers in education should enhance integration of computer technology into teaching practices by sensitizing other stakeholders on its importance as their expectations, as this will influence teachers' actual use.

		Integration	Norms
Integration	Pearson Correlation	1	.573**
	Sig. (2-tailed)		.000
Norms	Pearson Correlation	.573**	1
	Sig. (2-tailed)	.000	

Table 3: Correlation between Student Teachers' Subjective Norms and Prospective Computer Technology Integration

** Correlation Is Significant at the 0.01 Level (2-Tailed).

B. List Wise N=311

4.4. Relationship between Subjective Norms of Trainee Teachers and Integration of Computer

In order to test the relationship above, the following null hypothesis was formulated;

- H₀: The subjective norms of trainee teachers toward computer use in education do not significantly influence their integration of computer technology into future teaching practices.

From the results, the p value of trainee teachers' subjective norms is ($p=0.000 < 0.05$) which implies that we reject the null hypothesis stating that "The trainee teachers' subjective norms toward computer use in education do not significantly influence their integration of computer technology into future teaching practices". Therefore, there is a statistically

significant influence of trainee teachers' subjective norms on trainee teacher integration of computer. Results also indicate that $\beta_5 = 0.248$ ($p < 0.05$). This indicates that for each unit increase in the subjective norms of pre-service teachers, there is 0.248 unit increase in integration of computer technology. Furthermore, the influence of subjective norms on pre-service teacher's computer integration was stated by the t-test value = 4.92 which implies that the standard error associated with the parameter is over 5 times that of the error associated with it.

5. Conclusions

Results of the study showed that the subjective norm mean was 3.73 which is above average. It is expected that the subjective norms of pre-service teachers are positively related to their intentions to integrate computer technology in primary education in Kenya. If a teacher thinks his or her family, education officials, the head teacher pupils and friends accept and appreciate him or her using computer technology, he or she is likely to use it. Results from the study indicate that trainee teachers agreed with the statements that their peers will be using computer technology in their classrooms and that their peers will think they will benefit from using computer technology in future classrooms. They also agreed that the head teacher will think it is important to use computer technology in their classroom and that pupils thought it is important to use computer technology in their classroom. The prospective teachers also agreed that the county education officers will think it is important to use computer technology in their classroom. Correlation analysis results indicate that there was a strong positive relationship of student teachers' subjective norms and their prospective computer technology integration ($r = .573$, $n = 311$, $p < .05$). Moreover, Regression analysis results indicate ($P = 0.00 < 0.05$). This implies that as the student teachers' subjective norms improved the integration of computer technology increased. People will generally intend to perform a behavior when they have a positive attitude toward it and when they believe that important individuals think they should do so (Ajzen, 1991). The results indicate that the subjective norms are predictive of teachers' levels of computer use. These results support the theories which suggested the strength of it (subjective norm) being an indicator of behavior —the theory of reasoned action (Ajzen 1991).

It is important that TTCs while designing instruction for computer use, should also address trainee teachers' subjective norms. It is also important to consider that the construct of subjective norms is based on one's perceptions of the expectations of others. In light of this assumption, it can be inferred that the expectations of computer use from among teachers' significant others' - Headteachers, colleagues, pupils, and the professional supervisors are influential in developing teachers' own expectations of computer use. The findings agree with (Sugar, Crawly, & Fine, 2004 and Teo, 2009) that subjective norms are a key factor affecting teachers' intentions to use technology. Results indicate that the subjective norms of pre-service teachers are positively related to their intentions to integrate computer technology in primary education in Kenya. If a teacher thinks his or her family, education officials, the head teacher and friends accept and appreciate him or her using computer technology, he or she is likely to use it.

Similarly, pupils may also influence the adoption of technology because they are comfortable using it and might expect its integration into their classroom environment (Sadaf, et al., 2012; Shihab, 2008). Within a school environment, teachers' decisions to integrate technology might be affected by the opinions and suggestions of other people who are important to them (Ma et al., 2005). If conscientious personalities think that significant others believe that the technology should be used, they will form stronger intentions to use the technology. Subjective Norms and image are important determinants of behavioral intentions because they reflect the influence of others and the importance of having others think positively of them. The study established that there was statistically significant influence of trainee teachers' subjective norms on intention to integrate ICT. Trainee teachers who perceived that significant people in their work and life expected them to use ICT in their teaching had intentions to integrate it. Opinions of Education officers, head teachers, pupils and fellow teachers affect trainee teachers' prospective ICT behavior. It is therefore important to include all stakeholders in ICT workshops or seminars so that all people are sensitized about their importance. Their expectation of teachers to use ICT, will promote teacher use. Steyn and Van Greunen (2014) emphasized the importance of creating ownership and buy-in from not only the headteachers, and staff members but from parents and school management committees for sustainability of ICT projects in schools.

6. Recommendations

Owing to significant influence of subjective norms on ICT integrations, this study recommends that besides teachers and teacher trainees, other stakeholder's such as teacher trainers (tutors), education officers at county level, primary school head teachers and pupils should be aware of benefits of ICT. This will ensure that they will expect and demand that teachers integrate ICT in teaching and learning. Their expectation of teachers to use ICT, will promote teacher use. Steyn and Van Greunen (2014) emphasized the importance of creating ownership and buy-in from not only the head teachers, and staff members but from parents and school management committees for sustainability of ICT projects in schools.

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