"ICT Integration in Teaching and Learning in Practicum": What is the Conception of Pre-Service Teachers in Mccoy College of Education?

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Abstract: **The study focused on pre-service teachers' knowledge and conception of ICT integration in teaching and learning in McCoy College of Education, Nadowli in the Upper West Region of Ghana. The study was hinged on Technology Acceptance Model. The study used descriptive survey. Census sampling was used to select all the 44 pre-service teachers in their final year of training for the study. The study used questionnaire to collect the data. Descriptive statistics such as frequency and percentages were used to analyse the quantitative data. The study's findings showed that greater number of the pre-service teachers possess knowledge in ICT, have good conception about ICT integration in teaching and learning, and are willing to use ICT in teaching. It is recommended that pre-service teachers be given more training in ICT and be exposed to the ICT integration in teaching and learning in their colleges of training. Management of the college and other colleges of education should encourage, motivate and supervise pre-service teachers to integrate ICT in their daily learning and practicing how to teach.**

Key Works: **Integration, ICT, Knowledge, Conception, Pre-Service Teachers.**

I. INTRODUCTION

Traditionally, teaching is simply pouring curricular information to the students. It seems that learning is solely left on the part of the students while neglecting the fact that teaching only matters when learning truly occurs. True learning that is permanent and useful, leads to intelligent action and further learning can arise only out of the experience, interest and concerns of the learner [34].

Over the last decade, a growing number of experts, not only from field of education but also from economics, politics, international relations and so forth, around the world has reached a consensus on a new set of skills that are needed to be able to survive in the 21st century and on providing learners alternative learning opportunities to learn more than just reading, writing, and arithmetic. Reference [26] suggested that learners need to acquire critical thinking, effective communication, team work, continuous learning, and use of technology skills in order to help the global knowledge economy and be productive world citizens.

Developing 21st century skills and competencies in schools demands pedagogical shifts away from didactic approaches together with the embedding of ICT. The 21st century skills, sometimes referred to as 21st century competencies, is a complex term which encompasses skills that may be required to be successful in learning, in the workplace and to live effectively in the 21st century [8].

The role of Information-Communication Technologies in the 21st century classroom is increasing in prevalence and importance as educators understand its value and adjust to its influence. Technology is advancing at an exponential rate, and people with ICT skills will continue to be in high demand [20]. Research published by [13] highlights the strong connection between technology and educational reform. From their perspective, technology is the tool that will help teachers and students create new partnerships and unleash deeper learning, in which authentic learning tasks allow students to develop competencies, master content knowledge, and apply learning outcomes to contexts beyond the classroom.

Education in the 21st century highlights globalization and internationalization. Any advancement of technology presents theoretical constructs and realistic insights in the development and enhancement of knowledge, skills, and attitudes among students and teachers [1].

Integrating Information and Communication Technology (ICT) into teaching and learning is a growing area that has attracted many educators' attention in recent years [29]. Teachers need to be involved in collaborative projects and development of intervention change strategies, which include teaching partnerships with ICT as a tool. Teacher perceptions are a major predictor of the use of new technologies in instructional settings [29].

Eijkman as cited in [1] posited that with social media, educators can now much more readily connect their students not just in their own localities, their places of learning, and to each other, but also to a huge and ever expanding diversity of social, cultural, political networks and therefore to multiple ways of being knowing and communicating.

As revealed by [9], ICT does not automatically improve teaching and learning, teachers have to do something in order to motivate learners. The improvement of the teaching learning process depends on the strategies used by the teacher. Technology will help teachers facilitate effective teaching.

Reference [22] also agrees that ICT has become an important tool for supporting communication both in education and also

in a wide range of social practices making it easier to reach a wide audience and communicate at a distance, faster and more ubiquitously. Thus, in this sense, teachers are not implementing technology in their classrooms distinctly from pedagogy or curriculum. The technology is a tool and resource working ubiquitously with the construction of knowledge and development of 21st century competencies.

Previous studies have stated the importance of teacher perceptions as a critical factor among teacher ICT readiness to integrate ICT into classroom teaching. The study of [17] sought to discover whether a significant correlation exists between perception of self-efficacy and technology adoption among teachers. The findings point out a positive correlation between teacher self-efficacy and the integration of technology.

Ghana's Education Reforms launched in June 2007 introduced Computer literacy not only as a new subject, but also as a tool to enhance teaching and learning [3].

Reference [14], believed that the emergence of Information and Communications Technologies (ICTs) revealed it is a potential factor for economic growth and social development.

Today, ICT is changing the way people work and transforming education systems. The deployment of ICT into Education will result in the creation of new possibilities for learners and teachers to engage in new ways of information acquisition and analysis. ICT will enhance access to education and improve the quality of education delivery on equitable basis. Further that, it is the government's desire that through the deployment of ICT in Education, the culture and practice of traditional memory-based learning will be transformed to education that stimulates thinking and creativity necessary to meet the challenges of the 21st Century.

Reference [14], therefore, saw ICT as a means. The key role that Information and Communication Technologies (ICTs) can play in widening access to and improving the quality of education in all levels in Ghana, continues to be recognized as a key priority area.

Reference [17], stressed ICT as a key to effective communication, teaching and learning in the 21st century.

The Ghana's National Pre-Tertiary Education Curriculum Framework identified the use of Information Communication Technologies (ICTs) as a tool for a dialogic approach to teaching within learner-centred classrooms. ICT integration in subject teaching as a core proposition is in line with Ghana's Science, Technology, Engineering and Mathematics (STEM) agenda. The 'whys', 'the hows' and the 'whats' of integrating ICTs into subject teaching has been highlighted by the framework.

Reference [16], proposes the integration of ICT into initial teacher education programmes. In practice, there should be integration of ICT into the teacher training curriculum for teachers to: fully embrace ICT so that they will be fully aware and have positive attitudes; acquire the right knowledge and skills; implement and innovate the right kinds of technologies, and to become responsible citizens.

In the all Initial Teacher Education (ITE) curricula, the key domains to focus on include:

1. Awareness and attitude

a. awareness of educational value of ICT;
b. self-consciousness of using ICT;
c. assessment and self-reflection;
d. Concepts of life-long learning.

2. Knowledge and skills

a. basic knowledge and information literacy;
b. Basic ICT skills.

3. Implementation and innovation

a. applying ICT equitably;
b. applying ICT effectively;
c. applying ICT appropriately;
d. Self-regulating practice.

Thus, the purpose of this research is to explore pre-service teachers' knowledge and conception of ICT integration in teaching in McCoy College of Education, Nadowli of Ghana.

1.1 Research Objective

1. To explore the conception of pre-service teachers about ICT integration in teaching and learning in their practicum.

1.2 Research Question

1. What is the conception of pre- service teachers about ICT integration in teaching and learning in their practicum?

1.3 Problem Statement

Technological change has proven one of the few constants of the early 21st century, providing educators with the challenge and opportunity of preparing digital citizens in a global setting. This requires rethinking the type of learning necessary in the 21st century [27].

Existing teaching learning activities and delivery system are unsatisfactory and are not suitable for the age of 21st century [33]. The Twenty-first-century students are unique, especially with regard to technology. Most teachers are considered digital immigrants; however, their students' are digital natives. Reference [7] explained that today's students, or the next generation, are immersed in technology; they have technical skills and learning styles that are not often accommodated with current instructional methodologies.

Literature abounds trained teachers' knowledge of ICT, trained teachers' use of ICT and trained teachers' perception about the use of ICT in teaching in the Senior High schools, Colleges of Education and Universities in parts of Ghana and globally.

However, there appears to be a gap in literature on pre-service teachers' knowledge and conception of ICT integration in teaching in McCoy College of Education and the Nadowli-Kaleo District of Ghana. Little literature is found on pre-service teachers' knowledge and conception of ICT integration in teaching in McCoy College of Education, Nadowli and the Nadowli-Kaleo district as a whole. The study therefore sought to fill this gap. Thus, added more information to literature on pre-service teachers' knowledge and conception of ICT integration in teaching in the McCoy College of Education, Nadowli and the Nadowli-Kaleo district as a whole.

II. METHODOLOGY

The study adopted descriptive survey. In the study, the population comprised all the level 300 Diploma in Basic Education pre-service teachers of McCoy College of Education, Nadowli.

*2.1 Sample Collection***:** The researcher used census sampling to select all the 44 teacher trainees to respond to items on a questionnaire.

2.2 Instrumentation

Data was collected by means of a questionnaire developed by the researcher.

The questionnaire was structured which consisted a four point Likert scale which involved "4 = Strongly Agree, 3 = Agree, 2 = Disagree and 1 = Strongly Disagree". The questionnaire was divided two parts, the first part "A" explored the basic practical ICT knowledge of teacher trainees, the second part "B" of the questionnaire described the conception of teacher trainees about the ICT integration in teaching and learning.

2.3 Data Analysis

Quantitative data were collected through the questionnaire. Descriptive statistics in the form of frequency counts and percentages were used to analyse the quantitative data with the help of Statistical Product for Service Solution (SPSS) software version 20.

III. RESULTS AND DISCUSSION

Research Question 1: What is the conception of pre- service teachers about ICT integration in teaching and learning in their practicum?

Results from Table 1 show that, 65.9% of respondents strongly agreed and 29.5% agreed that ICT integration helps learners gain the knowledge, skills, and attitudes required to work in the 21st century, however, 4.5% strongly disagreed, 6.8% strongly agreed and 6.8% agreed while 52.3% disagreed and 34.1% strongly disagreed that using ICT to teach decreases the interaction between me and the Students. In their personal opinion, 2.3% strongly agreed and 6.8% agreed whereas 25% disagreed and 65.9% strongly disagreed that they did not think it is necessary for teachers and students to use ICT in teaching and learning, 29.5% strongly agreed and 63.6% agreed although 6.8% disagreed they believed ICT caters for different types of learners, 6.8% strongly agreed and 15.9% agreed while 43.2% disagreed and 34.1% strongly disagreed to the statement that ICT is applicable in the teaching of only few topics or aspects of subjects, 4.5% of respondents strongly agreed and 34.1% agreed that ICT integration leads to loss of class time due to set up or time to prepare lesson using ICT however 45.5% disagreed and 15.9% strongly disagreed with the statement. 52.3% strongly agreed and 36.4% agreed but 4.5% disagreed and 6.8% strongly disagreed that ICT makes lessons learner-cantered and activity based, 4.5% of respondents strongly agreed and 22.7% agreed to the statement that the use of ICT is be a source of distraction, however 38.6% disagreed and 34.1% strongly disagreed, 97.7% agreed while 2.3% disagreed that ICT help in designing learning activities that actively engage students in significant social studies content, 70.5% of respondents strongly agreed and 29.5% agreed ICT arouses the interest and enhances understanding of students in class. In responding to the assertion that ICT does not help learners develop personal perspectives that enable them to explore events and persistent issues, and to make informed choices, which reflect assessment of personal and societal consequences, 6.8% strongly agreed and 4.5% agreed to it, however, 52.3% disagreed and 36.4% strongly disagreed. 2.3% strongly agreed 11.4% agreed while 29.5% disagreed and 86.3% strongly disagreed that using ICT to teach will only help teachers not students.

The results revealed that pre-service teachers have mixed conceptions about ICT integration in teaching, however, it is worth noting that a greater number of pre-service teachers have positive conception of ICT integration in teaching and learning and willing to integrate ICT in teaching and learning in their practicum.

This is in consonance with [18], who posited that, most teachers have good perception and interest in using ICT in teaching and learning.

Reference [37] indicates that technology adoption decisions are influenced by teacher perceptions and attitudes towards technology adoption, which are formed from specific underlying personal beliefs about the consequences of adoption. They found teachers must undergo practical preparation in a real environment with real subjects.

Reference [28] also argue that teacher perceptions of ICT are important as it forms a tendency that helps them to be favourable or unfavourable towards the usage of the most modern technology in the field of education. Their perceptions affect the usage of specific technology and technological readiness to embrace and use new technologies to accomplish goals in home, life, and at work [25].

Reference [39] argued that, the powerful state of a particular technology and the extent to which it is used in the teaching and learning process is greatly determined by the attitudes teachers or users have towards it. This implies that the

integration of technology into the curriculum is not likely to succeed without teachers' acceptance and commitment to technology use.

IV. CONCLUSION AND IMPLICATION FOR PRACTICE.

The study revealed that though most of pre-service teachers have good perception and interest in using ICT in teaching and learning. This fulfils [15] domain 3f under professional practice, which states that the teacher is to produces and uses a variety of teaching and learning resources including ICT, to enhance learning.

This also satisfies [16] proposal of integration of ICT into the teacher training curriculum for pre-service teachers to: fully embrace ICT so that they will be fully aware and have positive attitudes; acquire the right knowledge and skills; implement and innovate the right kinds of technologies, and to become responsible citizens.

The implication is that, this will support the intention of The Ghana Government, Ghana Education Service and educators' intention to promote the integration of ICT in teaching and teaching. This will satisfy the needs of the 21st century learner where learners are technologically inclined.

V. RECOMMENDATIONS

Based on the findings of the study, the following recommendations are made:

It is recommended that pre-service teachers be given more training in ICT and be exposed to the ICT integration in teaching and learning in their colleges of training. There is a need to address pre-service teachers' concerns and fears as they integrate technology into their classroom instruction.

Additionally, Management of the college and other colleges of education should encourage, motivate and supervise pre-service teachers to integrate ICT in their daily learning and practicing how to teach.

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Items	SA	A	SA+A	D	SD	D+SD	T
	F (%)	F (%)	F (%)	F (%)	F (%)	F (%)	F (%)
ICT integration helps learners gain the knowledge, skills, and attitudes required to work in the 21st century.	29(65.9)	13(29.5)	42(95.4)	0 (0.0)	2 (4.5)	2(4.5)	44 100
Using ICT to teach decreases the interaction between me and the Students.	3 (6.8)	3 (6.8)	6(13.6)	23(52.3)	15(34.1)	38(86.4)	44 100
In my personal opinion, I do not think it is necessary for teachers and students to use ICT in teaching and learning.	1 (2.3)	3 (6.8)	4(9.1)	11(25)	29(65.9)	40(90.9)	44 100
I believe ICT caters for different types of learners.	13(29.5)	28(63.6)	41(93.1)	3 (6.8)	0 (0)	3(6.8)	44 100
ICT is applicable in the teaching of only few topics or aspects of subjects.	3 (6.8)	7 (15.9)	10(22.7)	19(43.2)	15(34.1)	34(77.3)	44 100
ICT integration leads to loss of class time due to set up or time to prepare lesson using ICT.	2 (4.5)	15(34.1)	17(38.6)	20(45.5)	7 (15.9)	27(61.4)	44 100
ICT makes lessons learner-cantered and activity based.	23(52.3)	16(36.4)	39(88.7)	2 (4.5)	3 (6.8)	5(11.3)	44 100
The use of ICT is be a source of distraction.	2 (4.5)	10(22.7)	12(27.2)	17(38.6)	15(34.1)	32(72.8)	44 100
ICT help in designing learning activities that actively engage students in significant social studies content.	24(54.5)	19(43.2)	43(97.7)	1 (2.3)	0 (0)	1(2.3)	44 100
ICT arouses the interest and enhances understanding of students in class.	31(70.5)	13(29.5)	44(100)	0 (0)	0 (0)	0(0)	44 100
ICT does not help learners develop personal perspectives that enable them to explore events and persistent issues, and to make informed choices, which reflect assessment of personal and societal consequences.	3 (6.8)	2 (4.5)	5(11.3)	23(52.3)	16(36.4)	39(88.7)	44 100
Using ICT to teach will only help teachers not students.	1 (2.3)	5 (11.4)	6(13.7)	13(29.5)	25(56.8)	38(86.3)	44 100

Table I: Conception of Pre- Service Teachers about Ict Integration in Teaching and Learning in Their Practicum**.**