

TEACHER-TRAINEES' PERCEPTIONS ON ICTs' EFFECTIVENESS IN TEACHING AND LEARNING

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Abstract: The study sought to examine the teacher-trainees' perceptions on the effectiveness of ICTs use in teaching and learning, with the focus on the students': common use of ICTs, level of ICT skills, impact of ICTs usage in learning and perceived factors associated with ICTs integration in learning. A descriptive quantitative research design was used to further the study process. The population examined comprised the selected Colleges of Education teacher-trainees in Ghana. Purposive sampling technique was used to involve 74 participants in the study. Descriptive data analysis was carried out using Jamovi Statistical Data Analysis (JSDA) tool and the Microsoft Excel Application package. The Cronbach's Alpha (α) reliability analysis obtained on items include: 0.83, 0.81, 0.85, and 0.72 respectively. Most of the students, of about 86.3% each, use ICT tools regularly for research on assignments and presentations of classwork respectively, while about 71.2% used it regularly for SNS. The findings revealed moderate or low frequency rates of about 43.8%, 19.2%, 30.1%, and 38.4% of the respondents that can use: word processing packages, excel, PowerPoint and Encyclopedia very well. The overall mean of 3.7 admitted ICTs use in learning: motivates them to explore more content areas, encourages them to collaborate with others easily, improves their IT/information management skills in general, will improve their career or employment prospects in the long term, makes them feel connected to what is going on in the Colleges, makes them get more actively involved in class activities, and it makes them feel connected to their environment, other students and the tutors. About 95.9% and 89.0% of the students were of the view that there should be strong internet connectivity in the Colleges to support ICTs in teaching and learning. About 65.8% of students also resolute there are limited or no ICTs facilities in their College libraries. In addition, 56.2% of the respondents were of the view that ICT courses be made mandatory core courses for all students for the 4-years of study. The study recommends the establishment/refurbish of ICT facilities in the Colleges, the organisation of periodic ICT training courses for tutors and the reconsideration of ICT core courses for students throughout the 4-year B.Ed. programme of study.

Keywords: ICTs, Colleges of Educations, technology, integration, National Council for Tertiary Education.

1. INTRODUCTION

All over the globe, the common song on the spectrum is nothing but 'technology and its enhancement in the socio-economic development.' Truly, both the developed and the developing nations, all necessitate recruiting professionals with high prerequisite of technological brains in all fields. Technology has been embraced in all fields of human endeavour, education, business, health, security and more. Many nations across the human walks of life undoubtedly raised the solo to augment the positive impact the Information Communications Technologies (ICTs) has on countries' socio-economic development. Ghana in her quest to emerge as a country inclined with technology elites, is living no stone unturned to incorporate technologies in all fields to enhance its socio-economic growth. With this, a good number of policies had been developed to structure a framework for ICT enactments in the various sectors.

Information Communications Technology for Accelerated Development (ICT4AD) policy is the country's national ICT policy that serves as a baseline statutory for all other ICT policies in the various sectors of the country. As its vision, the policy seeks to "improve the quality of life of the people of Ghana by significantly enriching their social, economic and cultural well-being through the rapid development and modernization of the economy and society using Information and Communication technologies as the main engine for accelerated and sustainable economic and social development" (ICT4AD, 2003, p.21). The main objective set aside for this policy was, "to engineer an ICT-led socio-economic development process with the potential to transform Ghana into a middle income, information-rich, knowledge-based and technology driven economy and society" (ICT4AD, 2003, p. 24).

The ICT4AD policy has as its mandatory requirement set aside specific objectives to harness the achievement of the overall. In the area of education, the policy's specific objective is exclusively indicated as: "to promote an improved educational system within which ICTs are widely deployed to facilitate the delivery of educational services at all levels of the educational system" (ICT4AD, 2003, p. 24). With this, the country's formal and non-formal educational sectors have fair share in the uprising technological ideological trends. The National policy, ICT4AD has fourteen pillars, among which education is emphasized as one of the critical and socio-economic enabler.

In order to expedite the technology exploitations in education, the Ministry of Education came out with ICT in Education Policy, which basically is purposed on three pillars to ensure systematic delivery, uses and utilizations of ICTs in both formal and non-formal educational sectors. These pillars as elaborated in the Ministry of Education (MoE) ICT in Education Policy (2015, p.18) include:

1. ICT as a learning and operating tool;
2. ICT as integrated into the teaching and learning; and
3. ICT as a career option for students.

Both the first and the second pillars outlined in the policy, basically aimed at providing and equipping students, educators, school leaders, administrators as well as other personnel in all the educational sectors with the necessary high-tech skills essential but not limited to transmitting, delivering as well as retrieving and the use of information and communications that will aid in enriching proficiencies of knowledge in the various fields. Narrowing to the teaching, learning and classroom specifications, the pillar two, “ICT as integrated into the Teaching and Learning of Subjects”, provides a framework for integrating ICT into all subjects of the curriculum studies and with the emphasis on sufficient preparation of teachers in the utilization of ICTs in their lesson delivery.

1.1 ICTs Integration into Teaching and Learning

The study of Buabeng-Andoh and Yidana (2015), explored Ghana’s Secondary School Teachers’ use of ICTs and the related factors associated with the ICT usage. The findings of the study revealed teachers’ insufficient skills in the ICTs’ usage. This, to them had resulted to low confidence in utilizing the technology appropriately to achieve the desired goal. Similarly, the findings of Agyemang and Mereku (2015) revealed that, Mathematics teachers’ integration of technology teaching in the country’s Senior High Schools (SHS) is very minimal. Ultimately, their finding is in line with the findings of Boakye and Banini (2008) who inferred that high number of SHS teachers do not use technology to aid lesson delivery. Rather, most often the teachers use technology to send mails, type lesson notes, etc.

The findings of Mereku, Yidana, Hodzi, Tete-Mensah, and Williams (2009), also revealed that, instead of teachers using technology in the integration of teaching and learning, most teachers use it only to type examination questions and to process students’ examination results. Asiedu-Addo, Apawu, Owusu-Ansah (2016), in their descriptive survey on Mathematics educators usage of ICTs in teaching and learning postulated that, out of 48 participants, 95.8% of them were aware of the integration of ICTs into the teaching and learning of mathematics, however, only 41.7% were incorporating ICTs into the teaching and learning of mathematics. This was as a result of numerous challenges being identified such as inadequate ICT software and hardware resources. Their study further revealed that in spite of the challenges enumerated, most educators confirmed ICTs uses has positive effect on students’ learning. Natia (2015), in his study indicated that the ability of teachers to use computer to teach and research is weak due to lack of access to internet, electricity/power problem, inadequate number of computers and the technical know-how. Similarly the study of Peparah (2016), uncovered that there is lack of computers, unqualified teachers, and limited practicals after teaching as well as lack of internet access, resulting low integration of ICTs in teaching and learning. Edumadze (2015) expressed that tutors are of the view that ICT integration into the teaching and learning are at the beginning stages with respect to Anderson’s ICT in Education model.

Obviously, most of the studies focus on teachers’ use of technology in class. Not only that, but the spotlight is more on the use of technology in the country’s second cycle institutions. In digressing, the current study, focuses on the Colleges of Education teacher-trainees’ (students’, student-teachers’, trainee-teachers’, pre-service teachers’) perceptions on the effectiveness of ICTs uses in teaching and learning.

1.2 Colleges of Education in Ghana

GhanaWeb (2017) in citing the Ghana Government, referred to teacher education as “the type of education and training given to and acquired by an individual to make him or her academically and professionally proficient and competent as a teacher”. The purpose of the country’s Colleges of Education is primarily focused on training prospective teachers to be competent and committed in taking the responsibilities of the teaching profession. These trainees are purposely trained not only in acquiring the content knowledge of their course of studies but also they are being trained to acquire Technological Pedagogical Content Knowledge to meet the 21st century classroom teaching and learning environment. These students acquire rudiments dexterities of teaching basic (Kindergartens to Junior High) school children.

Currently, the country is privileged to have about 46 public Colleges of Educational institutions (Wikipedia, 2019), and a number of accredited Private Colleges of Education designated solely to train prospective teachers to acquire the necessary skills that qualify them as professional teachers to teach. The Colleges of Education accredited as tertiary institutions’ by the National Council for Tertiary Education (NCTE), were up-graded to run a four-year Bachelor of Education (B.Ed.) degree programme in Basic Education with effect from September 2018. In effect, the Colleges have been designated to be mentored by the five Public Universities (University of Ghana (UG), University of Education Winneba (UEW), University of Cape Coast (UCC), Kwame Nkrumah University of Science and Technology (KNUST) and University for Development Studies (UDS)) in the country. The Colleges are expected to be mentored and to be capable of taking the responsibilities of running full fledge University Colleges on their own.

1.3 Structure of Information Technology in Colleges of Education Curriculum

The National Teacher Education Curriculum Framework (NTECF) in Ghana proposes the integration of ICT into initial teacher education programmes. The proponents purported that in practice, there should be an integration of ICT into the teacher training curriculum for the teacher-trainees 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.

1.4 ICT as a Course in the Colleges of Education

Information Technology has been one of the core and examinable courses the teacher-trainees offer in the second year of their study, thus the Diploma in Basic Education students. This course is one-credit hour course offered in each of the two semesters in the second year. As a shift from the diploma to the degree level in the Colleges of Education, ICT as 'Computer literacy' is mounted in the University of Cape Coast's curriculums for Colleges of Education, as a core course in the first semester of the first year programme for the students. Time allotted for ICT/Computer literacy is three-credit hour. This implies that, all the students have the opportunity to study ICT formally as a course for only one semester throughout their four years of the degree programme. In the Colleges of Education curriculum implemented by the remaining four Universities, (University of Ghana (UG), University of Education Winneba (UEW), University for Development Studies (UDS) and Kwame Nkrumah University of Science and Technology (KNUST), the ICT course is offered as a core course by all the students' categories (i.e. Early Grade, Upper Primary and JHS B.Ed. students) in the second semester of the first year. The B.Ed. JHS Education students however, have the opportunity to select ICT as a specialty (an elective course) throughout the 4-year programme, while the course is a mandatory core for Upper Primary and Early Grade B.Ed. students for one additional semester in their programme of study. The mandatory core courses of ICT for the teacher-trainees were based on the identified key contextual issues surrounding the low integration of ICT into teaching and learning in the Ghanaian Schools. These issues include: the intra-national digital divide (Rich/Poor, Male/Female, Urban/Rural), low capacity for effective ICT teaching and Integration (inadequate number of trained ICT teachers, low ICT competency, inferiority in the use of ICTs), inadequate support, lack of authentic assessment, and socio-cultural perceptions of ICT (Colleges of Education B.Ed. Curriculum, 2018).

1.5 Impacts of ICTs Integration in Teaching and Learning

There is widespread agreement that ICT has a positive impact on learning, and many educators believe that ICT provides better learning opportunities than 'traditional' approaches. The study of McMahon (2009) disclosed that the growth of students' critical thinking skills and studying in a technology-rich learning environment had statistically significant correlations. ICT gives more imaginative arrangements to diverse sorts of learning request. Learners can get to all sorts of writings from starting to progress levels with ease through computers, portable work stations, individual advanced collaborators (PDAs) or iPads (Fu, 2013). It was discovered that using ICT in the classroom allows for more individualized and differentiated curriculum, as well as improved self-management and self-regulation among students and more collaborative relationships between teachers and students (Cuttance, 2001). The findings of Reid (2002) display that students have more time to explore beyond the mechanics of course content with ICT, which allows them to better understand concepts. Mwalongo (2011) emphasized that the use of ICT in the classroom is likely to inspire teachers and learners/students by assisting them in clarifying complex concepts, saving time, engaging learners, and simplifying teachers' work.

As indicated earlier, this study focuses on examining teacher-trainees' perceptions on the effectiveness of ICTs use in teaching and learning. Specifically the study examined the outlined objectives that formed the constructs of the survey questionnaire for the study.

1.6 Objectives

The Study specifically sought to examine teacher-trainees':

- Common use of ICTs
- Level of skills acquired in ICTs' usage.
- Perceptions on the impacts of ICTs in teaching and learning.
- Perceived issues affecting the use of ICTs in teaching and learning.

2. METHODOLOGY

2.1 Research Design

A descriptive quantitative research design was used to carry out the study process. The purpose of this study is to examine teacher-trainees' perceptions on the effectiveness of ICTs use in teaching and learning.

2.2 Sample

The population examined comprises Colleges of Education teacher-trainees in Ghana. Two Colleges from the same geographical area formed the study areas. The sample consisted of 100 teacher-trainees who were selected based on purposive sampling techniques. Out of the 100 teacher-trainees selected sample, 73 participants including 27(37%) and 46(63%) female and male respectfully voluntarily completed and returned their questionnaires.

2.3 Instrument

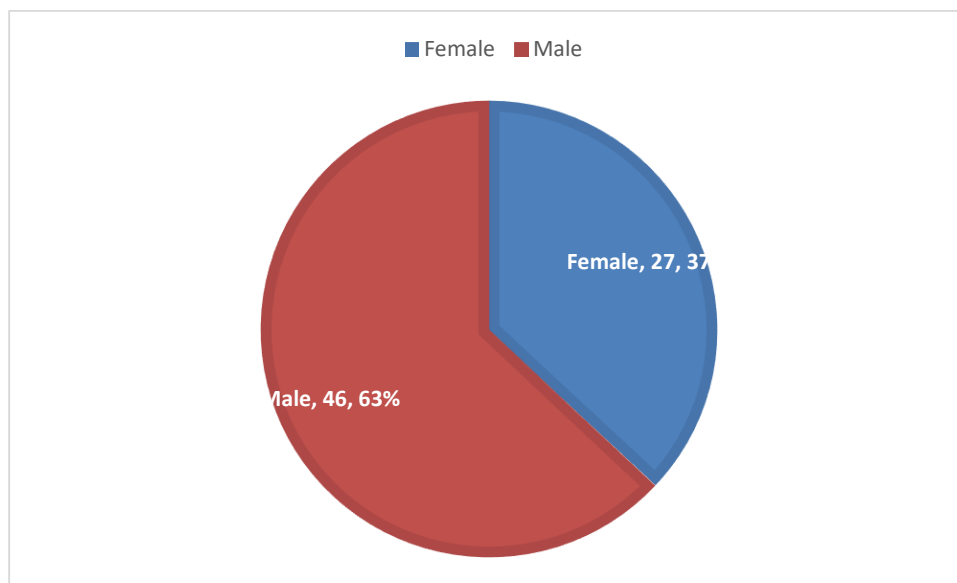
The researchers used questionnaire as the primary data collection instrument. The questionnaire consists of five sections made up of closed-ended items. The first section was about the identification of sex type and time spent online daily. The next section focuses on the students' common use of ICTs. The third section considered the level of ICT skills acquired by students. Impact of ICTs' usage in learning was the fourth section and finally the perceived factors associated with ICTs' integration in learning. The participants were made aware that the survey is anonymous and is voluntary. Before the administration of the questionnaire, piloting was carried out on 35 College students who were not included in the main study. This was done to test for the reliability of the items' internal consistency. According to Creswell (2012), a survey questionnaire pilot testing is a phase in which a researcher makes adjustments to an instrument based on input from a limited number of people who complete and evaluate the instrument.

2.4 Data Collection and Analysis

The responses were processed with Jamovi Statistical Data Analysis (JSDA) tool and the Microsoft Excel Application package. Frequencies and percentages were computed and analyzed. The Cronbach's Alpha (α) reliability analysis was carried out on the items of the four constructs tested. This include: ICTs use, level of ICT skills, impacts of ICTs in learning and Issues affecting ICTs' usage. The alpha output include: 0.83, 0.81, 0.85, and 0.72 respectively. The alpha values obtained for the constructs indicate a high level of internal consistency of the items. All the items were closed-ended Likert-types. The construct: level of ICTs uses was scaled as: regularly = 3, Once a while (at least once in a month) =2, Never = 1. Level of ICT skills was rated as: "I can use it well= 3", "I can use it to some extent = 2", "I cannot use it = 1". Both the constructs: "impacts of ICTs in learning" and "issues affecting ICTs usage" were rated as: "Strongly Agree = 4", "Agree =3", "Disagree =2", and "Strongly Disagree = 1".

3. RESULTS AND DISCUSSIONS

3.1 Results



The figure 1: Gender

The figure 1 shows the frequencies of male and female in the data collected. The frequency of 27 (37%) females and 46(63%) males were involved in the data collection.

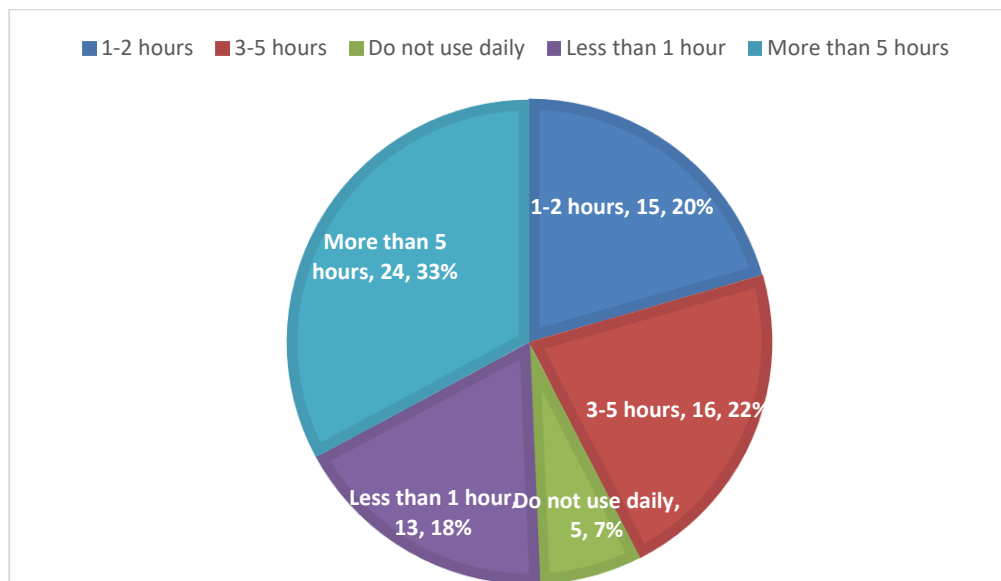


Figure 2: Hours Spent Online

Figure 2 presents data on the hours spent online. The results showed that about 20% of the respondents spend about 1-2 hours daily online, 18% of the students spend less than 1-hour online, 22% spend between 3-5 hours online, while 33% of the respondents spend more than 5-hours online daily, about 7% of the respondents however do not go online daily.

Table 1: Levels of ICTs Use

	Regularly		Once a While		Never	
	F	%	F	%	F	%
Download learning materials	49	67.1	23	31.5	1	1.4
Social interactions	52	71.2	20	27.4	1	1.4
Emailing	12	16.4	56	76.7	5	6.8
Watching and downloading recreational movies	11	15.1	48	65.8	14	19.2
Gaming	8	11.0	26	35.6	39	53.4
Online Learning	46	63.0	26	35.6	1	1.4
News reading	38	52.1	30	41.1	5	6.8
Research on assignment	63	86.3	10	13.7	0	0.0
Presentation of Class work	63	86.3	10	13.7	0	0.0
Doing homework	43	58.9	27	37.0	3	4.1
Watching and downloading educational movies	46	63.0	27	37.0	0	0.0

Criteria: Regularly =3, once a while 2, never =1

Table 2: Descriptive Level of ICTs Us

	N	Mean
Download learning materials	73	2.7
Social interactions	73	2.7
Emailing	73	2.1
Watching and downloading recreational movies	73	2.0
Gaming	73	1.6
Online Learning	73	2.6
News reading	73	2.5
Research	73	2.9
Presentation of Class work	73	2.9
Doing homework	73	2.6
Watching and downloading educational materials	73	2.6
Overall mean		2.5

The table 1 produces the records on the students' ICT use in performing some activities. The frequencies of 16.4%, 15.1%, and 11.0% of the students spend time regularly on emailing, watching and downloading recreational movies and on playing games. About 86.3% each of the students use the ICTs regularly for research and for making presentation of class work respectively. About 63.0% each however, regularly use ICT tools for online learning and for watching and downloading educational movies respectively. The frequencies of about 67.1%, 71.2%, 52.1%, and 58.9% respectively, regularly use ICT tools for: downloading learning materials, social interactions, news reading, and doing assignments. The mean values of the responses were presented in the table 2 as: 2.7, 2.7, 2.1, 2.0, 1.6, 2.6, 2.5, 2.9, 2.9, 2.6, and 2.6 on the items: download learning materials, social interactions, emailing, watching and downloading recreational movies, gaming, online Learning, news reading, research, presentation of Class work, doing homework, and watching and downloading educational materials, respectively, and with the overall mean as 2.5.

Table 3: Level of Skills in using ICTs

	I can use it very well		I can use it to a small extent		I cannot use it	
	N	%	N	%	N	%
Word processing packages (Word)	32	43.8	34	46.6	7	9.6
Spreadsheet (Excel)	14	19.2	42	57.5	17	23.3
Presentation Software (PowerPoint)	22	30.1	37	50.7	14	19.2
The Internet	52	71.2	21	28.8	0	0.0
Search Engine	46	63.0	19	26.0	8	11.0
Encyclopedia	28	38.4	29	39.7	16	21.9
Email	51	69.9	20	27.4	2	2.7
Social Media Apps. (Twitter, WhatsApp, etc.)	54	74.0	18	24.7	1	1.4

Criteria: I can use it very well =3, I can use it to small extent= 2, I cannot use it =1

Table 4: Level of Skills in using ICTs

	N	Mean
Word processing packages (Word)	73	2.3
Spreadsheet (Excel)	73	2.0
Presentation Software (PowerPoint)	73	2.1
The Internet	73	2.7
Search Engine	73	2.5
Encyclopedia	73	2.2
Email	73	2.7
Social Media Apps. (Twitter, WhatsApp, etc.)	73	2.7
Overall mean		2.4

The table 3 illustrates the results on the respondents' frequencies as: 74.0%, 69.9%, 63.0%, and 71.2% respectively of the respondents can use the social media, email, search engine and the internet very well. About 43.8%, 19.2%, 30.1%, and 38.4% of the respondents can also use: word processing packages, excel, PowerPoint and Encyclopedia very well. About 46.6%, 57.5%, 50.7% and 39.7%

respectively of the respondents can use to some extent: word processing packages, Excel, Presentation software, and encyclopedia. About 23.3%, 19.2%, and 21.9% respectively of the respondents cannot use the Spreadsheet, PowerPoint and encyclopedia. The table 4, shows the mean results of the responses on the items: Word processing packages (Word), Spreadsheet (Excel), Presentation Software (PowerPoint), The Internet, Search Engine, Encyclopedia, Email, and the Social Media Applications, as: 2.3, 2.0, 2.1, 2.7, 2.5, 2.2, 2.7, and 2.7 respectively. The overall mean of students' responses on their level of skills in ICT usage is 2.4.

Table 5: Impacts of ICTs in Learning

	Strongly Agree		Agree		Disagree		Strongly Disagree	
	N	%	N	%	N	%	N	%
It motivates me to explore many topics I may not have seen before.	58	79.5	14	19.2	1	1.4	0	0.0
It allows me to collaborate with others easily, both on and outside of the campus.	55	75.3	16	21.9	2	2.7	0	0.0
It will improve my IT/information management skills in general.	56	76.7	16	21.9	1	1.4	0	0.0
It will improve my career or employment prospects in the long term.	51	69.9	20	27.4	2	2.7	0	0.0
Technology makes me feel connected to what is going on at the college.	56	76.7	14	19.2	3	4.1	0	0.0
I get more actively involved in courses that use technology.	50	68.5	20	27.4	3	4.1	0	0.0
Technology makes me feel connected to what is going on at the college	42	57.5	25	34.2	5	6.8	1	1.4
Technology makes me feel connected to other students.	47	64.4	24	32.9	2	2.7	0	0.0
Technology makes me feel more connected to tutors.	44	60.3	22	30.1	5	6.8	2	2.7
		69.9		26.0		3.7		0.5

Criteria: Strongly Agree =4, Agree =3, Disagree =2, Strongly Disagree =1

Table 6: Impacts of ICTs in Learning

	N	Mean
It motivates me to explore many topics I may not have seen before.	73	3.8
It allows me to collaborate with others easily, both on and outside of the campus.	73	3.7
It will improve my IT/information management skills in general.	73	3.8
It will improve my career or employment prospects in the long term.	73	3.7
Technology makes me feel connected to what is going on at the college	73	3.7
I get more actively involved in courses that use technology.	73	3.6
Technology makes me feel connected to what's going on at the college	73	3.5
Technology makes me feel connected to other students.	73	3.6
Technology makes me feel connected to tutors.	73	3.5
Overall mean		3.7

The table 5, shows the frequencies of students' responses on the impact of ICTs. About 79.5%, 75.3%, 76.7%, of the respondents strongly agreed on the statements: It motivates me to explore many topics I may not have seen before, it allows me to collaborate with others easily, both on and outside of the campus, it will improve my IT/information management skills in general, and technology makes me feel connected to what is going on at the College. The remaining items: It will improve my career or employment prospects in the long term, I get more actively involved in courses that use technology, Technology makes me feel connected to other students and Technology makes me feel more connected to tutors, were strongly agreed upon by students with frequencies of 69.9, 68.5, 57.5, 64.4, and 60.3 percentages respectively. The mean values of the responses on the items as illustrated in the table 6, ranges from 3.5 to 3.8, and with the overall mean being 3.7.

Table 7: Issues affecting ICTs Usage

Items	Strongly Agree		Agree		Disagree		Strongly Disagree	
	N	%	N	%	N	%	N	%
There should be mandatory Core ICT courses for all students for the 4-year B.Ed. programme?	41	56.2	28	38.4	2	2.7	2	2.7
The College needs strong internet connectivity to support ICTs in teaching and learning.	70	95.9	3	4.1	0	0.0	0	0.0
There should be periodic professional trainings for teachers on the use of ICTs in teaching and learning.	65	89.0	8	11.0	0	0.0	0	0.0
There are limited computers/ICTs facilities in the computer lab for students' use.	39	53.4	27	37.0	3	4.1	4	5.5
The College library has limited no ICTs to aid easy access to information	48	65.8	16	21.9	6	8.2	3	4.1

Criteria: Strongly Agree =4, Agree =3, Disagree =2, Strongly Disagree =1

Table 8: Issues affecting ICTs Usage

Items	N	Mean
There should be mandatory Core ICT courses for all students for the 4-year B.Ed. programme?	73	3.5
The College needs strong internet connectivity to support ICTs in teaching and learning.	73	4.0
There should be periodic professional trainings for teachers' on the use of ICTs in teaching and learning.	73	3.9
There are limited computers/ICTs facilities in the computer lab for students' use.	73	3.4
The College library is limited or have no ICTs to aid easy access to information	73	3.5
Overall mean		3.6

The table 7 explains the frequencies of students' responses to the various items relating to their perceptions on issues needed to be addressed regarding effective ICTs integration in teaching and learning. The frequencies of about 95.9% and 89.0% of the respondents strongly agreed respectively on the items: the College needs strong internet connectivity to support ICTs in teaching and learning, and there should be periodic professional training for tutors on the use of ICTs in teaching and learning. About 56.2%, 53.4% and 65.8% respectively of the respondents also strongly agreed that there should be mandatory Core ICT courses for all students for the 4-year B.Ed. programme, there are limited computers/ICTs facilities in the computer lab for students' use, and the College library is limited or have no ICTs to aid easy access to information. The mean values collated on the responses were shown in the table 8, and it ranges from 3.4 to 4.0, with the overall mean of 3.6.

3.2 Discussions

The study was conducted to examine teacher-trainees' perceptions on the effectiveness of ICTs use in teaching and learning. The findings on the teacher-trainees' level of ICT usage indicate most of the students use technologies regularly for research, classwork presentations, online learning, watching and downloading educational movies, downloading learning materials, social interactions, news reading, and doing assignments. Literature findings revealed, students mostly used technology is social networking services (SNS) (Gasaymeh, 2018). However, the findings of this study showed that students mostly with about 86.3% each use ICT tools regularly for research on assignments and presentations of class work respectively, while about 71.2% of the respondents used it regularly for SNS.

The findings on students' level of skills using ICT applications showed that most of the students with the frequencies of: 74.0%, 69.9%, 63.0%, and 71.2% respectively can use the social media, email, search engine and the internet very well. However, low frequency rates of about 43.8%, 19.2%, 30.1%, and 38.4% of the respondents, ultimately less than 50% in each case, affirmed they can also use: word processing packages, excel, PowerPoint and Encyclopedia very well. About 46.6%, 57.5%, 50.7% and 39.7% respectively of the respondents declared they can use it to some extent. The results indicated that most of the students have quite moderate or low skills in the use of these (word processing packages, excel, PowerPoint and Encyclopedia) applications. These findings are related to the findings of Nor Izah, Norazah, and Zalizan, (2008), which specifies that students' level of ICT skills is rated as moderate. The study of Umar and Jalil (2012) outlined that the students' basic ICT skills and Internet applications for accessing and exchanging knowledge are at an intermediate level, whereas advanced ICT applications are at the lowest level, and Internet applications for communication skills are at the proficient level. The findings of Rae (2005), resort that majority of students of about

87.7% and 81.2% were confident in their ability to use a word processor and an e-mail programme respectively. In contrast, the findings of this study showed that only 43.8% of the students can use a word processor very well. Comparably, on the other hand, about 69.9% of the respondents also claimed they can use e-mail service well.

The findings on the impact of ICTs use in learning revealed the average total of about 95.9% of students with the overall mean of 3.7 admitted that ICTs use in learning: motivates them to explore more content areas, encourages them to collaborate with others easily, improves their IT/information management skills in general, will improve their career or employment prospects in the long term, makes them feel connected to what is going on in the Colleges, makes them get more actively involved in class activities, and it makes them feel connected to their environment, other students and the tutors. This is in agreement with the findings of Nwite (2007), who attested that ICTs integration in teaching-learning makes learning more interesting, and increase active involvement of students in the teaching-learning process. Reid (2002) affirmed that ICT allows students more opportunities to learn beyond the mechanics of course material enabling them to better grasp concepts. The author confirmed that the relationship between teaching and learning is often reformed by the use of ICTs. The reports of UNESCO, (2015) showed ICT tools can improve education quality in a variety of ways as: to improve learner's motivation and commitment, to promote the learning of basic skills, and to enhance the teacher's preparation. The report further reiterates learners' intentions and self-engagement confidence are maintained when they are encouraged to learn by the use of ICT resources. Emeh and Agbor, (2003) are of the view that the use of ICT in teaching and learning is considered a transformational tool, and if these tools are used successfully, they will facilitate a shift to a learner-centered approach of education.

The findings on students' perceptions on issues relating to effectiveness of ICTs use in teaching and learning showed that majority of the respondents of about 95.9% and 89.0% strongly were of the view that there should be strong internet connectivity in the Colleges to support ICTs in teaching and learning. In addition, there should be periodic professional training of tutors on ICTs use in pedagogy. The frequencies of about 65.8% of students also resolute there are limited or no ICTs facilities in their College libraries. The frequency of 56.2% of the respondents, however, is of the view that ICT courses be made mandatory Core courses for all students for the 4-year B.Ed. programme.

4. CONCLUSION AND RECOMMENDATIONS

This study examined teacher-trainees perceptions on the effectiveness of ICTs use in teaching and learning. The findings revealed that students mostly use the ICT tools for research purposes, presentations of class work and on social network services regularly. It is also publicized that the students' skills in using the technology applications such as word processing packages, Spreadsheet (excel), PowerPoint and Encyclopedia are of moderate to low level as compared to their skills in the use of social media, e-mail, and internet browsing. Barely over 95% of the students admitted that: the use of ICT motivates them to explore, encourages them to collaborate easily, improves their IT/information management skills, makes them feel connected and makes them get more actively involved in class activities. Majority of the students of about 95.9% and 89.0% attest the need for strong internet connectivity and professional development training for tutors on the use of ICTs in teaching and learning. The frequencies of about 65.8% of the students also resolute there are limited or no ICT facilities in the College libraries to aid easy and fast information search.

Based on the findings, the following recommendations are made:

1. The administrators of the Colleges of Education should ensure adequate ICT facilities are provided in their institutions to aid ICT integration into teaching and learning.
2. The Colleges' administrators, departmental heads and the professional development units should consider organizing periodic ICT enhanced access courses for tutors to equip them with the necessary skills to integrate ICTs in teaching.
3. The National Council for Tertiary Education (NCTE), Universities of affiliations and all other stakeholders responsible for the Colleges of Education curriculum development should consider spreading ICT course in the curriculum throughout the 4-years of study of the B. Ed programme. This will equip the teacher-trainees with the skills they need to integrate the ICT in the classrooms.

According Andoh (2012), pedagogical improvements are needed if teachers are to be effective in incorporating technology to support learning. He claims that the lack of a sound pedagogical foundation for integrating technology into the classroom has resulted in a limited and unimaginative use of technology.

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