



Challenges of ICT Integration in Teachers' Education: A Case Study of the College of Education, University of Liberia

Gabriel M. Kennedy

Department of Secondary Education, William V.S. Tubman College of Education, University of Liberia, Monrovia, Liberia

ABSTRACT

Published Online: May 13, 2023

Innovation in education does not simply change teaching yet, in addition, the learning structures. The readiness of students in the present day necessitates that educators integrate ICTs into scholarly activities which will additionally place learners in the situation for the twenty-first-century arrangements. It encourages students to participate and facilitates their learning. It is necessary to include ICT in teachers' training programs because it adds quality to the program and motivates the preservice teachers to use ICT. The research was conducted at the College of Education, the most elevated teacher training institution in Liberia. The study was planned to explore the difficulties of ICT integration in teachers' education, prescribe schemes to reduce the difficulties, and lastly strengthen the overall integration process. The mixed method was used in this study, with 27 respondents completing the survey and interview questionnaires. The data was gathered using closed-ended questionnaires for the teachers and open-ended questionnaires for administrators. The study utilized both descriptive statistics and thematic data analysis approach to analyze the data. The study results identify the lack of ICT infrastructures and equipment, such as computers, institutional internet facility, projectors, etc., lack of support for teachers, inadequate experience in teaching with ICT, and inadequate ICT training, as major challenges hindering ICT incorporation in teachers' education. Therefore, teacher training programs/ institutions should be adequately equipped with ICT infrastructures which are essential for the teacher's empowerment to apply ICT in training. Recommendations were made to include ICT as a center subject in the curriculum of teachers' colleges in Liberia since it is a huge factor in Liberia's vision 2030.

Keywords:

Teachers Education, Integration, ICT

INTRODUCTION

ICT stands for "Information and Communication Technology." It is changing how we live and work in public space. When we talk about "ICT" today, we should think about all of the ways that advanced technology is used to make it easier for people, companies, and groups to use information. Today, technological growth is more common than ever before and has a wide range of highlights, such as cataloging and modernization. ICT is an abbreviation for "Information and Communication Technology," which has recently grown to include electronic contact.

Corresponding Author: Gabriel M. Kennedy

**Cite this Article: Gabriel M. Kennedy (2023). Challenges of ICT Integration in Teachers' Education: A Case Study of the College of Education, University of Liberia. International Journal of Social Science and Education Research Studies, 3(5), 860-870*

With the growth of ICT around the world, many writers have written about how important it is to include ICT in teacher training. In 2015, a group of experts from UNESCO and the global network met in Korea to come up with a plan for creating new educational inspiration that could change people's lives. In Article 10 of the Incheon Declaration, it says, "Information and communication technologies (ICTs) must be used to strengthen education frameworks, information dissemination, data access, quality and viable learning, and progressively successful support planning." (UNESCO, 2015). Most people agree that ICT can help teachers and students work together and improve 21st-century training. ICT changes not only how people are taught, but also how they learn. ICT gives instructors and teachers a strong domain and helps students understand ideas and remember what they've learned. Homiakova, Arras, and Kozik (2017) said that one feature of advanced education is the use of Information and Communication Technologies,

Gabriel M. Kennedy, Challenges of ICT Integration in Teachers' Education: A Case Study of the College of Education, University of Liberia

which are becoming more and more important in the teaching of topics with different main focuses.

The United Nations Educational, Scientific, and Cultural Organization (UNESCO) emphasized that information and communication technologies (ICT) could help more people get training, integrate learning, help teachers get ahead, improve the quality and importance of education, strengthen integration, and improve teaching, organization, and administration. (UNESCO 2019). There have been many attempts to improve education by putting technology into schools for training teachers. "Using ICT helps teachers get ready for the challenges of teaching, encourages learning, and helps them learn more about how to use ICT tools in the teaching and learning process" (Cox, & Marshall, 2007).

Liberia is still making progress in some areas of innovation, but the country is still having trouble putting technology innovations into its educational system. In Liberia, the main goal of ICT in training is to teach students and teachers how to use and work with technology. Even though it is clear that technological growth improves education, helps students do better in school, and makes it easier for teachers to teach, Liberia is still behind when it comes to using ICT to teach and learn. To make this point clear, the nation is yet to develop a clear and comprehensive policy for ICT integration in education.

PROBLEM STATEMENT

UNESCO recognizes that instructors are one of the most persuasive and ground-breaking powers for value, access, and quality in training and key to practical worldwide improvement. Therefore, their preparation, enrolment, maintenance, status and working conditions remain engrossing. The part of furnishing teachers with abilities of ICT while preparing them is fundamental to their professional advancement and for the improvement of education. Regarding ICTs, UNESCO has referenced that it gives across the board access to training, esteem learning, quality learning, and teaching likewise as teachers' professional progression. (UNESCO-UIL 2014).

The College of Education is the most elevated teachers training institution in the Republic. The college was built up to add to the improvement of education in Liberia by getting ready qualified pre-service educators for basic and secondary schools. Moreover, the college is to aid the expert improvement of in-service educators and to team up with the Ministry of Education in educational planning and programs for the country. The school was recently known as The William V.S. Tubman School of Teacher Training and was an agreeable venture of the Liberian Government, and its primary point was to help meet the country's squeezing requirement for prepared teachers. Connected to the School of West Africa, the college gave two years of scholarly and professional training for graduates of high school to teach in elementary schools. Its first four years' degree in teaching was

granted to nine people including six men and three ladies. The school has contributed monstrously to the preparation of educators in Liberia. Notwithstanding, since its establishment in 1947, ICT has been missing from the college's educational program. With the interest of ICT combination in instruction, and dependent on the headway of innovation, the college, in 2018 with the approval of the school faculty senate, adapted to its educational programs, the ICT segment which execution started recently in semester one of 2019/2020. The ICT portion of the college curriculum has only two courses for a four-year program. Even though the college has included in its educational programs the ICT segment, there are still difficulties in the total integration and implementation process. Considering this issue, this research was planned for recognizing significant challenges of integrating ICT in teachers' education.

PURPOSE

- Identify the challenges of ICT integration in teachers' education programs in Liberia
- Prescribe components that could be used utilized to coordinate and improve ICT in teachers' educations programs.
- Encourage the widespread integration and improvement of ICT in teachers' education programs in Liberia

LITERATURE REVIEW

Concept of ICT in Teachers' Education

On the issue of ICT significance there are lots of research done, especially about the ways to integrate ICT in training of teachers as a gadget to improve the process of utilization of ICT in the learning and academics departments. For the 21st-century educators to be sufficiently arranged for the advanced classroom, they must obtain the essential information. This implies that the establishments responsible for preparing teachers must likewise be prepared to get ready future instructors.

Lim, Yan and Xiong, (2015) led a contextual analysis investigation on the improvement of pre-service instructors' ICT in teaching skills at three colleges in Mainland China.

The study embraced a four-segment instructional plan framework to create its educational program, consolidated a way of learning which is based on inquiry so as to deal well with preservice teaching staff's pedagogical skills along with the learning stages based on web for the proper motivation and encouragement to share the ICT utilization encounters for the process of learning and academics. The study discovery shows that pre-service teachers favored Current Instructive Innovation since it is bound to extend the ICT knowledge plus presentation prospect, build up their ICT information plus the abilities and develop their insight about the successful educating and learning with ICT. The result likewise shows that imaginative instructional methods together with progressively pertinent content of the course bolstered

Gabriel M. Kennedy, Challenges of ICT Integration in Teachers' Education: A Case Study of the College of Education, University of Liberia

through Internet learning stage may improve the adequacy of center ICT in education courses. Likewise, Aslan and Zhu, (2017) explored the degree to which ICT fitness, perceived skill in ICT, mentalities towards ICT, and uneasiness around ICT use; outside hindrances to ICT coordination, ICT-related courses, instructive information, and related knowledge regarding ICT utilization for the ICT integration into various practices of teaching for educators at pre-service level. From the arena of Turkish language 599 preservice educators were selected and for other subjects such as social sciences, applied mathematics, life sciences etc. gave data for this study which were in their fourth program preparing year. The result of the research shows that instructive information, ICT-related courses, and perceived ICT ability essentially anticipated the incorporation of ICT in the educating training. It was additionally uncovered that the pre-service instructors preparing programs, particularly educational information and courses related to ICT, have a huge impact upon empowering pre-service educators to apply ICT in teaching practices. These studies highlight the importance of ICT in teachers' training. They have pointed out that ICT in teacher education allows pre-service instructors to inculcate into the teaching a use of technology which further improves the education and learning process.

Teachers Trainers ICT Knowledge plus Attitudes

Aslan and Zhu, (2016) contended that instructors should be skilled in incorporating ICT into training to help the education and learning procedure. Teacher trainers assume an important job in combination of ICT in teacher training. They are the medium through which the information on ICT is transmitted to pre-service teachers.

Accordingly, they must have the ICT skill required to get ready the pre-service teachers with the goal that they can have the option to incorporate the use of ICT in the teaching and realizing a potential result when teachers go into the teaching field. Ghavifeker and Rosdy, (2015) found that ICT incorporation has incredible adequacy for academic leaders as well as learners. It is shown in the outcomes that with ICT tools, instructors are well outfitted, and they used ICT facilities, this has been a fundamental factor for the attaining of ideal learning process which is based on innovation. Professional improvement programs and trainings for teachers were also discovered to be a key job in the up gradation of the quality learning of students. Angadi, (2019) studied the intent and framework for comparing the use of ICT in teachers' training and concludes that, impact of ICTs on teacher training institutions should be evaluated periodically to make sure that the first-rate with application objectives are met. The result suggests that there may be an urgent need for intensive training for all the teacher educators in the faculties of training. The curriculum developers need to increase international content materials for serving the local needs and make it available to all the faculties of training online in addition to the offline content material or

combined studying modules. Avidov-Ungar and Iluz, (2014) analyzed the ICT integration levels among various teachers and they determined that in teaching there is a progressive scope of ICT, and this also reflects that teacher trainer profiles are needed for the integration of innovative and creative instructional methods. The study discovered three coordination levels (fundamental level, engaged level, imaginative level) which mirrored the extent of the ICT combination with regards to teachers' preparation making a scope of integration and usage, which can fill in as a framework for the powerful reception and integration of inventive instructional method by teacher trainers and scholastic authorities in academic teacher training colleges.

Gyaase, Gyamfi, and Kuranchie, (2019) established that though the ICT proficiency shown by instructors in pre-college schools in Ghana is great, but their capacity to use ICT to plan and convey topic insides and advance the condition of their learning is low. Mirzajani, Mahmu, Mohd Ayub, and Luan, (2015) again uncovered in their survey of a literary work that absence of enough preparation, absence of appropriate programming and equipment, absence of information and abilities, absence of ICT authority support, lacking time, and absence of self-viability are the key boundaries for the usage of ICTs in pre-service teachers' instructive courses.

Regarding teachers trainers ICT skills, Magen-Nagar, and Maskit, (2016) analyzed the combination of teacher's training in North Israel schools with ICT integration corresponding to the settings of creative and innovative academics, school based ICT culture, the ways whereby the instructors emblematic thoughts are supposed to add the part of ICT tools and in the situations of ICT how learners get their training; furthermore recognized the working elements throughout teachers' expert improvement that affects the integrating of trend-setting innovations in teaching and learning. Mixed methods were utilized to consider 120 instructors through basic equation displaying. It was uncovered that instructors' understanding and dominance of ICT devices affected the utilization for teaching purposes, as opposed to individual sentiments, the ICT culture, and the accessibility of the apparatuses. The investigation focused on the requirement for advancing the combination of innovation in colleges as an association of erudition from the major idea of view underlining advancement of educator training programs. Hernández, Orrego Cumpa, and Quiñones Rodríguez, (2018) found that the socio-emotional angle, attitudes, and mentalities the instructors have regarding the methods for ICT are determinant factors when utilizing and incorporating them into teaching procedures. The correct utilization of technology in teaching requires a great deal of capacities that the instructor must acquire to make a system that allows the use of innovative apparatuses, in which the educator preparing should consider as one of the essential options

Gabriel M. Kennedy, Challenges of ICT Integration in Teachers' Education: A Case Study of the College of Education, University of Liberia

before going up against the new instructive troubles (Hernandez, 2017).

Students' Prior Knowledge and Attitude

Relating to the perceptions of pre-service teachers' and attitudes towards ICT addition in the instructor's education, Gyamfi (2016) discovered that usability and supposed effectiveness were the central antecedents of the pre-service educators' outlooks towards ICT which thusly, foresee their aims to apply the innovation in their future classroom. Mahdum, Hadriana, and Safriyanti, (2019) inspected the insights and inspirations of pre-service instructors and found that they had a decent degree of perception and inspiration toward ICT integration in learning processes. Notwithstanding, there were few issues identified with facilities and specialized ability. It was likewise uncovered that the accomplishment of executing the new educational program with ICT in teaching depends significantly upon the mentalities of the student-teacher and their ability to grasp such innovation and ICT information and aptitudes. The ability of students to use ICT and related implements for their education is considered as one of the basic issues affecting the incorporation of ICT for educational practices. If students lack basic foundations or are not computer literate, integrating ICT in teaching becomes difficult for the teacher trainers which further hinders the whole process.

Qasem, and Viswanathappa, (2016), studied teacher trainees' outlooks and discernments for ICT incorporation in their training process. Assessments were utilized to decide the pre-service instructors' perceptions towards incorporating ICT in instructional structure and teachers' preparation colleges. The discoveries show that pre-service educators indicated critical enthusiasm for the incorporation of ICT in their preparation procedure. The outcome additionally shows that the pre-service instructors will demonstrate optimistic attitudes to incorporate ICT in the education procedures on the off chance that they get the necessary abilities while in training.

The Development ICT Curriculum

Zyad, (2016) examined instructors' attitudes towards ICT usage just as the boundaries that impede the spread of ICT use for teaching purposes; and uncovered that despite educators' inspirational frames of mind towards ICT, it is still generally underused because of ascribable to curricular, infrastructural, and strategic hindrances. Factors were analyzed by Ungar and Baruch, (2016) for the proper motivation and encouragement of ICT working in the Israel's institutes of teacher's education. It was uncovered in the outcomes that offering education to the teachers regarding their belief in the use of ICT was checked. It was seen that there are various ruining factors in the process of incorporation of ICT in coaching of the teachers especially in various schools and colleges of Israel. In ICT skills there was a proficient enhancement of education of teachers along with proper guidelines to apply advanced creative ideas and discoveries whereby some extra variables were facilitated.

The outcome further revealed that the absence of ICT curriculums, various important resources which include frameworks as well as time, in the ICT integration they were the most hindering factors. How fruitful the ICT integration degree also demonstrates how effective it has been used for the organizational level, student's training as well as level of education for teachers as far as educational plan, curriculum development, and implementation strategy.

Kabiru (2019) completed a study in North-Eastern Nigeria on ICT incorporation and Curriculum factors and found that absence of well-characterized ICT curriculum to coordinate teachers, absence of information about approaches to incorporate ICT to improve the educational program, trouble in coordinating and utilizing diverse ICT devices and inaccessibility of assets as significant hindrances to a fruitful incorporation of ICT in institutes of instructors training in the North-Eastern Nigeria. Additional findings revealed that the proficiency of ICT instructors on policy, educational program, instructional method, innovation, organization, and professional improvement was low. ICT should be fused in specialized improvement of instructors and ICT program should also be to be sufficiently hearty to upgrade teachers' activity execution in schools.

Fox and Henri, (2015), argues that the absence of clear and orderly management help, the firmness of the educational program and evaluation forms, time imperatives, and constrained proper expert advancement were the fundamental purposes behind the limited effect of ICT on the educators' practices in the classroom.

Available ICT Infrastructure

Mathilda and Uwizeyimana, (2014) explain that while a few educators had gotten some state of ICT preparation, it was apparent that such training has had insignificant or no effect at all on the abilities and self-conviction of teachers to utilize ICT in their educating. Further discoveries show that except for TVs, printers, and PC/PCs, there is a deficiency of ICT assets open at resources for ICT incorporation, and that the educating and educational program organization elements of most educators have been adversely affected by utilizing the need of ICT hardware as well as deficient utilization of these ICT assets for these universities who have them. Again, Couninef, Djelti and Courbali, (2013) qualitatively and quantitatively analyzed the gratefulness and restraints for ICT use in Advanced Education in Algeria and established that blockages related with the incorporation of ICT in higher institution of learning are because of the unavailability of ICT system and sponsorship. Muslem, Yusuf and Juliana (2018) analyzed English educators' observations and difficulties of the usage of ICT in classrooms. The outcomes indicated that English educators discovered ICT support in instructing. In any case, the restricted time, and apparatuses, combined with poor Internet connectivity just as an absence of information and experience of ICT training were impediments for the instructor's utilization. Gupta (2016) explains that the

Gabriel M. Kennedy, Challenges of ICT Integration in Teachers' Education: A Case Study of the College of Education, University of Liberia

institutions need to apprehend the potential of ICT integration and make it a factor to embrace the dire need of adapting to the technological needs with the purpose of being organized for 21st-century learning. The institution ought to be equipped with technical devices and teachers ought to be furnished with the assets that they need for higher teaching that can be performed through technology. The shortage of right integration of ICT with the faculty curriculum is, for this reason, a hassle that needs severe consideration. While students aren't organized from the beginning to apply technical gadgets, then the hassle is consequently initiated from the very start.

Issues Hampering ICT Integration

Nath, (2019) observed the in-service instructors' reviews on ICT amalgamation in the school curriculum and their discernments on the hindrances that avert teachers from the usage of ICT inside the schoolroom. It was specified that the mainstream teachers do not have ICT antiquity but are proficient of using technology in normal activities and use it for compulsory document keeping functions. However, consistent with academics, barriers such as limited access to computers, lack of subsidy, irregular power and absence of ICT related policies and training often limit the successful integration of ICT within the curriculum. Ahmed, (2015) explains that out that resources, upkeep of the equipment, a nonexistence of ICT abilities amongst faculty in conjunction with a deficiency of ICT edification and absence of vibrant ICT rules had been prime encounters stopping the combination process.

Yasmin, (2015) contends that the job of university heads in building the capacity of educators to help and encourage ICT amalgamation in instructing and learning is significant. Yasmin clarifies that the significant duty of school pleaders lies in starting and actualizing school transformation, likewise in captivating the precise choices to help the ICT integration into academic practices. Monitoring the diverse formative stages that educators may experience in an execution stage and realizing how to give sufficient help is fundamental to an effective ICT integration. Tondeur, Van and Valcke (2018). hold those school-related components like an ICT plan, ICT support, and ICT training have a big impact on how ICT is used in the classroom. Also, the study shows that instructional methods are often immature and not used enough. In a survey undertaken by Mukhari (2016), the lack of ICT policies, weak ICT systems, and teachers who aren't trained in ICT were found to be the biggest problems with adding technology to teacher training. Asiyai (2014) performed similar research and found that there are a number of problems that need to be solved before ICT can be used effectively in schools and colleges. These problems include the lack of proper funding by the government for ICT services in schools and colleges and the lack of knowledge about how to use ICT in schools and colleges. Ramorola (2013) looked into the problems teachers

and students face during the process of integration. He found that inaccessible technology strategies, limited ICT materials, a lack of qualified ICT teachers, and issues with maintenance and specialization are the most important problems that keep institutions from integrating ICT properly.

Research Questions

- To incorporate ICT in teachers' education programs in Liberia what are key challenges?
- What are some essential mechanisms to handle the difficulties of incorporating ICT in teachers' education Programs in Liberia?

Theoretical Background

The Socially Shared Cognition theory by Brown and Cole (2000) was used to explain the significance of this study. In this framework, learners are seen as part of a network where understanding is shared between the members, the materials, and devices they are using, and the social structures where learning takes place. Brown and Cole lamented that students of this network are required to be dynamic members for cognition to happen. Sensitivity is additionally appropriated, as sharing suggests both that the students are encountering something together and that the realization which happens is being partitioned and disseminated between the members in the learning network. These thoughts of sharing are significant to this hypothesis because no two students can ever encounter a circumstance like another student.

Since it is shared, and its gathering requires the dynamic commitment of those included, it is somewhat built. These scholars accept that exhibition, comprehension, and setting (or condition) associate with one another to frame a give-and-take connection. They saw that the association between these three factors gives the best approach to getting greater results. Levels of self-feasibility show an individual's perspective on his capacity in a picked territory. Self-efficiency is another piece of this theory that must be considered. Pintrich and Schunk, (1996) characterized Self-viability as "an idea identifying with an individual's self-perceived confidence in her/his capacity to complete activities that will accomplish assigned objectives." Self-adequacy depends on convictions about what an individual can achieve with the abilities and information she/he has as of now. Technological Innovation has an influence on this theory by being something that shares insight into the network of learning. This theory empowered the readiness of the instructors who fill in as the facilitator in students learning. Since innovation has been incorporated into teaching, it is reasonable that the individuals who are engaged with the way toward educating be outfitted with the necessary information and aptitudes need to encourage learning using innovation. This learning theory bolsters the abilities required by 21st-century students who are put in a learning situation. The utilization of this learning theory can set up students for their lives in this new world of innovation. This is rarely conceivable that the educators who are the facilitators for students learning are not outfitted with the

Gabriel M. Kennedy, Challenges of ICT Integration in Teachers' Education: A Case Study of the College of Education, University of Liberia

important aptitudes need to plan students to meet the 21st-century work showcase which is intensely founded on innovation.

Conceptual Context

Researchers have confirmed that consolidating ICT in teaching and learning can be as productive as customary teaching, especially in teacher preparation programs. Innovation in teacher training can speedily enhance training, expand access and compliance. To effectively integrate and foster ICT in teacher education programs, considering the important barriers that hinder the overall process and the impression is a key. To help improve the value and proficiency of essential instruction, ICT must be considered. Ikehukwu, (2016) reveals that negative ICT policy implementation, limited infrastructures, lack of technical know-how about ways to deal with or coordinate ICT to improve the educational plan, and limited access to facilities as major barriers hindering the usage of ICT in in educators' instruction. To set up the connection between the reliant and autonomous factors, the researcher in accordance with the review of literature identified the independent variable as lack of ICT training, limited ICT infrastructure, limited ICT access, and lack of ICT curriculum. These variables are considered key if ICT is to integrate in teachers' education. The dependent variables are the impact of ICT integration which are access to communication and information, improve teaching and teachers' performance, improve students' achievement, different learning style. The independent variables which are the hindrances to ICT reconciliation directly affect the dependent variable, the impact. In this framework, the researcher has identified the circumstances and logical connection between the difficulties of ICT mix and the effect it has on the overall quality of education.

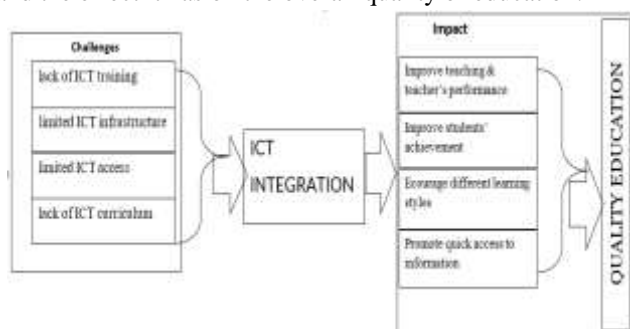


Figure 1: Conceptual Framework

Methodology

The mixed research methodology was used using opened ended survey and closed ended questions to investigate the challenges of ICT integration in teachers' education.

Research sample

The target population of this study consisted of 27 participants of the college of education university of Liberia including 24 teachers and 3 administrators. A group of people, things and objects which are drawn from the samples

is called population, according to Kombo and Tromp (2006). To sample the participants for the study, the purposive sampling system was used. When an investigative worker chooses specific people in the population or sometimes all the population for a research project, it is known as purposive sampling technique. (Valcheva, 2017). The purposive sampling technique was utilized to save time, as all respondents of the study were chosen because they could give direct responses to the research question. The demographic data was collected to better understand the background of the teacher respondents, the investigator required them to indicate their age, gender, and length of teaching experience. This information was significant in establishing the nature of the teacher participants of the study. The study needed to discover the age range and gender gap of the teachers teaching at the teachers' college. This information helped to know the age range and gender disparity of the teachers teaching at the highest teaching college in the Republic of Liberia. The teaching experience of the teachers from the college was considered vital as it had an impact on the teachers' use of ICT in teaching their various subjects.

Table1: Age Distribution of Teachers

Age range	Frequency	Percent
Between 31-40 years	3	12.5
Between 41-50 years	16	66.7
51 or more	5	20.8
Total	24	100.0

The information in Table 1 shows that most of the instructors teaching at the school were of the age somewhere in the range of 41-and 50-years, representing 66.7%. This shows most of the educators instructing at the instructors' school are in their forties.

Table 2: Gender distribution of Teachers

	Frequency	Percent
Male	17	70.8
Female	7	29.2
Total	24	100.0

The information on the instructors in Table 2 shows that 17 which represent 70.8% of the 24 educators were men while 7 (29.2%) were females. This demonstrates most of the instructors were male and there were fewer female educators at the school.

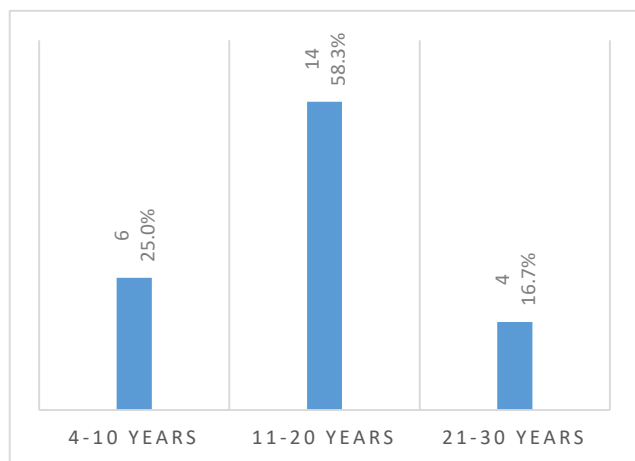


Figure 2: Instructors' Teaching Experience

The data in figure 2 shows that most of the instructors at the school had a degree of experience between 11 to 20 years which represents 58.3%. This showed most of the educators teaching at the college had been teaching for a sensible period and had superior teaching experience. While about 25% of them have teaching experience between 4-10 which is also a good range of teaching experience and have impact on their attitudes to accept teaching with ICT tools and devices. Similarly, 16.7% of the teachers had 21-30 teaching experience. The overall result indicated that all the teachers had sufficient experience in teaching and were willing to accept the use of ICT in the lesson preparation and presentation if they were given the required support.

Instruments

Open ended but written interviews along with some structured questions were used as tools for the collection of data in this study. Unstructured question is another term which can be used for open ended questionnaires, and they can also be called unrestricted questionnaire kind. They always call for respondent's very loose reaction and that too in their own words. The questionnaire comprises of the framework of respondents' answers for the questionnaires and all the queries which are raised by the interviewer. Unstructured questionnaire or interview questions were utilized to gather the administrators' perspectives on the difficulties of ICT integration in the preparation of preservice teachers. An organized poll was used to inspire the instructors' reactions to the difficulties of ICT combination in teaching. As per the evidence from the literature, the questionnaires were designed to investigate teachers' experience with ICT in teaching, insights of teachers regarding ICT usage, and access and provision to teachers for teaching. An assistant gathered data for this study. The structured questionnaire or survey questionnaires and the unstructured questionnaire were designed by the researcher and emailed to an associate who helped in the administration of the questionnaires. After these processes, the filled-in questionnaires were emailed in return to the investigator for the data processing.

Data Analysis

The data gathered from this research was analyzed through the accompanying strategies: interpreting the administrators' interview responses, coding into noteworthy subjects and themes. The teachers' questionnaire data was sorted and entered in the data analysis software (SPSS) to generate required statistics to uncover the challenges of ICT integration into teachers' education. Descriptive statistics were used for analysis of the data from the teachers' questionnaire while the administrators' result was analyzed thematically.

Ethical Considerations

The ethical issues that were considered during the study was the privacy of the respondents. Respondents were informed that the information assembled from this study was for scholarly purposes. Likewise, the investigator requested permission from the administration of the college to carry out this study and was granted permission. The researcher likewise exerted every effort to keep away from every single unethical issue that could thwart this research.

RESULTS SUMMARY

The study investigated the challenges of ICT integration in teachers' education in Liberia Republic of Liberia. The secondary objectives were to:

Prescribe components that could be utilized to coordinate and improve ICT in teachers Education Programs in Liberia and Encourage the widespread integration and improvement of ICT in teachers' education in Liberia.

After the examination and explanation of the numerical and the expressive data concerning the objectives of the study, it was established that the majority of the teachers at the college of education did not apply ICT in teaching their courses because of various challenges that exist at the college. The statistical data discovered most of the teachers at the college were between the age range of 41-50 years and that the college was dominated by male teachers as 70.8% of the teachers were males and a little percentage of 29.2% females. Additionally, the study found that most of the teachers at the college had been teaching for a reasonable period and had a better teaching experience and have positive attitudes towards the integration of ICT in the various lessons if they were provided with the necessary infrastructural and technical support. From the outcomes, the study uncovered that absence of ICT facilities and gear, for example, institutional web office, projectors, PCs, and so forth., absence of involvement with teaching with ICT, absence of ICT preparation, and absence of help to educators for teaching were significant difficulties impeding the integration of ICT in teachers training programs in Liberia. Be that as it may, in view of educators' perspectives towards the utilization of ICT, the study finding uncovered that most of the instructors had inspirational mentalities towards ICT use and were eager to incorporate ICT in the lessons.

DISCUSSION

This study aimed to discover the challenges of ICT integration in teachers' education, recommend mechanisms to reduce the challenges, and finally encourage the total integration of ICT. The outcomes from the two-questionnaire investigation conducted have facilitated in responding to the research questions. The discoveries from the administrators and instructors' statistics revealed that lack of ICT infrastructures and equipment, such as computers, institutional internet facility, projectors, etc., lack of support to teachers for teaching, deficiency in teaching with ICT, and absence of training, as major challenges hindering the incorporation of ICT in teachers' training. It was manifested from the responses that there was no computer or a projector in the classrooms for lesson presentation.

The administrators likewise pointed out that there are limited computers in the school computers' lab that were accessible to teachers. It was revealed that there is limited internet access at the college and because of this, teachers find it difficult to prepare their lessons. Most teachers purchase their data and use their internet modem to browse the internet to prepare their lessons. Also, the statistics from the teachers' respondents show that 70.8% of the teachers did not have experience teaching with ICT tools such as computers and projector and other ICT equipment. Similarly, 91.7% of the teachers did not have access to ICT tools for teaching or receive support in the form of training to enhance their smooth use of ICT in teaching. Certainly, these findings agree with those Özdemir, (2017) who discover that difficulties to the merger of technology in teaching were the inadequacy of technology infrastructure. The findings are also in agreement with those of Kouninef, Djelti, and Kourbali, (2013) as they concluded that with the incorporation of ICT in advanced institution there are some constraints as well as difficulties which are mainly due to the infrastructure and support deficiency. In consonance with Rabah, 2015 these findings are matched, and other factors are studied such as funding inflexibilities, professional developmental needs for additional support, technological incorporations, the estimations, and evaluations for the designing of syllabus for the combination of ICT in advanced training are considered as hindering aspects. The present results of the study reflect those discoursed in the literature review of Hossain, Salam and Shi, (2016) who in their study discovered that every university was dealing with the infrastructural problems in the usage of ICT such as loss of ICT system, loss of manpower, nonexistence of training, curriculum issues and so on. The discoveries of this study again concord with the findings from Gupta (2016) who explains that the institutions need to apprehend the potential of ICT incorporation and make it a factor to embrace the dire need of adapting to the technological needs with the purpose of being organized for the 21st-century learning. The institution ought to be equipped with technical devices and teachers ought to be

furnished with the assets that they need for higher teaching that can be performed with the use of technology. The study findings on nonexistence of ICT training as a difficulty to the combination of ICT agrees with findings from Aslan and Zhu (2016) who contended that instructors should be skilled in incorporating ICT into training to help students. They explained that teacher trainers assume significant job in the combination of ICT in teacher training. They are the medium through which the information on ICT is transmitted to student-teachers. Accordingly, teacher trainers must obtain the required skills to get ready the teacher trainees with the goal that they can have the option to incorporate the operation of ICT in instruction and realizing the potential results when they go into the teaching field. Though the study revealed that there was partial interface with ICT apparatuses such as PCs, projectors, the web, and other relevant ICT facilities. The data concerning instructors' arrogances towards ICT discloses that twenty-two of the teachers, which accounts for 91.7%, were optimistic concerning ICT in teaching. This is a strong sign that when educators are supplied with the needed ICT equipment and services and are trained on their usage, the integration of ICT will be realized in all their courses.

Availability of technological structure and assets in universities are important situations to consider when combination ICT in training. Successful execution and coordination of ICT into teaching in colleges rely predominantly on availability and openness of ICT assets. Hence, accessibility of computers, refreshed programming, and equipment remain crucial components to fruitful selection and reconciliation of innovation. For the 21st-century teachers to be fully equipped and prepared to enter the classroom, they need to be provided with new ways to process knowledge. ICT fuse educators' training positively affects instructing and learning as it urges preservice instructors to fuse the utilization of ICT in their exercises when they get in the field. Proficient improvement preparing programs for educators moreover accepted a key activity in overhauling understudies' quality learning.

CONCLUSION

In view of the research results and in accordance with the literature review, recommendations were made concerning the difficulties that thwart the productive execution of innovation in instructors' training in Liberia. It was presumed that educators had little experience teaching with ICT devices which made it hard for instructors to incorporate different ICT tools in their courses and furthermore most of the educators did not have the technical knowhow to use the devices of ICT in lesson preparation and presentation. All educators are required to utilize ICTs in the teaching and learning in the arranged information-based culture irrespective of which part of the world they are or their financial foundation. The idea of the 21st century students' requests that instructors incorporate ICTs into academic

Gabriel M. Kennedy, Challenges of ICT Integration in Teachers' Education: A Case Study of the College of Education, University of Liberia

exercises to set them up for 21st-century society and workforce. For the 21st-century educators to be appropriately organized for the advanced classroom, they must obtain the essential information. This implies that the establishments responsible for preparing teachers must likewise be prepared to get ready future instructors. Training teachers with the information and abilities of ICT while preparing them is essential to their professional advancement and for the upgrading of education.

Because of limited ICT infrastructure and equipment, such as computers, projectors, institutional internet services, the integration of ICT at the college was not properly implemented. The compelling and innovative execution of ICTs will open doors for learning which are regarded significant right now. Ikechukwu, (2016) clarified that negative policy implementation, lack of technical know-how about approaches to ICT integration, lacking infrastructure in ICT hinders the practical implementation of ICT in advanced institutions. ICT related courses are supposed to be given proper consideration and the ability of ICT is perceived to be essential in its combination in various practices for training teachers. The establishments as well as training programs for teachers should be equipped well and appropriately with the essential infrastructure of ICT and other similar facilities should be given to teacher so that they can take advantage of combining them in their teachings. Teacher trainers should be encouraged to participate in ICT training programs and the pre-service teachers to make use of their knowledge and help them amalgamate it to their teachings.

POLICY IMPLICATIONS

Policymakers

Policymakers need to consider putting ICT as a center subject in the curriculum of teacher colleges in Liberia since it is a huge factor in Liberia's vision 2030 which states "tertiary education assumes a significant job towards an information-based economy and society, as this is key for taking advantage of opportunities related to technological innovation-led globalization.

The University of Liberia in collaboration with the Ministry of education should allocate funds for the acquisition of more ICT devices like computers, projectors, smartboards, internet, and so forth to equip the College of Education which is the most notable establishment of teacher training) technologically. This would support the boundless of ICT in all courses in the school which could in this manner offer path to the spread of ICT in teaching at the country's most notable institution of learning, and other teacher training Institution in Liberia. Many teacher trainers, lecturers, and professors in Liberia still find difficulty using ICT tools in classrooms which is a result of their unskillfulness in ICT. It is, therefore, recommended that they be given basic ICT training. This will help in the effective use of ICT by teacher trainers, lecturers, and professors.

Teacher training institutions in collaboration with the University of Liberia and the Ministry of Education needs to make sure there is more training of teachers, lecturers, and professors regarding ICT. The government in collaboration with its Development Partners like UNESCO, USAID, etc. should aid in equipping all teachers training institutions with adequate ICT resources. This could help in fostering the integration of ICT in teachers' education across Liberia.

Suggestion for Additional Studies

The present study was done at the College of Education which is the nation's highest teacher training institution. It is recommended that further studies be conducted in other teachers' training institutions like the RTTIs. Also, similar studies could be carried out in secondary schools.

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