UNIVERSITY OF EDUCATION, WINNEBA

INTEGRATION OF EMERGING ICTS INTO NON-FORMAL ADULT EDUCATION DELIVERY: A CASE OF ADULT EDUCATION PROGRAMME IN THE ACCRA METROPOLITAN ASSEMBLY

KENNEDY AFRAM-ASARE

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A dissertation in the Department of Information Technology Education, Faculty of Technical Education, submitted to the School of Graduate Studies in partial fulfilment of the requirements for the award of the degree of Master of Science (Information Technology Education) in the University of Education, Winneba

MAY, 2020

DECLARATION

STUDENT'S DECLARATION

I, Kennedy Afram-Asare, declare that this dissertation, with the exception of quotations and references contained in published works which have all been identified and duly acknowledged, is entirely my own original work, and it has not been submitted, either in part or whole, for another degree elsewhere.

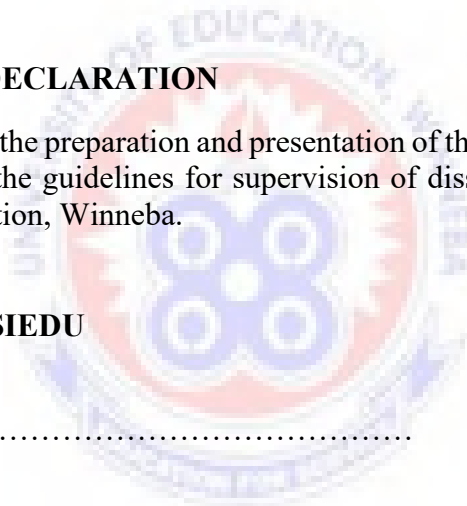SIGNATURE: ………………………………………

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SUPERVISOR'S DECLARATION

I hereby declare that the preparation and presentation of this dissertation was supervised in accordance with the guidelines for supervision of dissertation as laid down by the University of Education, Winneba.

MR. WILLIAM ASIEDU

SIGNATURE: ………………………………………

DATE: ………………………………………………

DEDICATION

To my beloved wife and cherished children for the financial, emotional and psychological pain they went through whiles I was away and undertaking this study.

ACKNOWLEDGEMENT

TABLE OF CONTENTS

LIST OF TABLES

TABLE   **PAGE**

LIST OF FIGURES

FIGURE   **PAGE**

GLOSSARY

ICT — Information and Communication Technology

ICTs — Information and Communication Technologies

UNDP — United Nations Development Programme

UNESCO — United Nations Educational, Scientific and Cultural Organization

EFA — Education for All

ALE — Adult Learning and Education

NFED — Non-Formal Education Division

MoE — Ministry of Education

NFLP — National Functional Literacy Programme

AMA — Accra Metropolitan Assembly

GPS — Global Positioning System

GPAs — Cumulative Averages

MLI — Mobile Lecture Interaction

LMS — Learning Management System

MVC — Manhattan Virtual Classroom

WA — WhatsApp

FB — Facebook

SPSS — Statistical Package for Social Sciences

PDA — Personal Digital Assistant

SDG — Sustainable Development Goal

ABSTRACT

Adult education is a useful training in which the adults involve themselves in orderly and continued self-educating activities that need to be supported with ICTs. Adult education touches all facets of social life that demand the use of technological tools. The study identifies specific ICT tools adult learners prefer to use as source of information and learning, ICT delivery methods learners find comfortable for acquiring information and the level at which learners will accept the integration of emerging ICTs into Adult Education delivery. Data collection was done using questionnaires over a sample size of 320 respondents. Descriptive explanatory survey was used to identify the ICT tools, delivery methods and learner's acceptance of the integration of the ICTs into Non-Formal adult education delivery programme. The result of the study indicated that, the most preferred ICT tools learners use to acquire information and learning is television which induces viewers to engage in literacy practice. Also, it became clear that learners preferred blended method of lesson delivery to online and overwhelmingly accept the integration of ICTs in the adult education delivery. It is recommended that the government formulates policies that will help provide the televisions to the rural poor especially, women at affordable prices. The cost of establishment and subscription to DSTV ought to be looked at to empower more occupants to approach the trending TV channels on the globe with most updated information.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Provision of adult education appears to be one of the most difficult tasks for governments the world over (Schmelkes, 2011). A number of studies have revealed that, poor adults in deprived communities of the world have been excluded and discriminated against when issues of education come up (UNDP, 2013). The product of discrimination by governments has forced many to drop-out at an early stage, growing to become adults. Although literacy has been featured prominent on progress agenda over the past years, the UNESCO Institute for Statistics (UIS) data indicated that 750 million adults, of whom two-third are women, still lack basic reading and writing skills, according to 2016 available data. One-hundred and two (102) million of the non-literate populace was between the ages of 15 and 24 years old.

UIS data indicated that, most countries did not meet Education for All (EFA) goal of reducing adult illiteracy rates by 50% between the years 2000 and 2015. It is estimated that the literacy rates for youth and adults have grown by 4% at the global level (UNESCO, 2017). Literacy plays an important role in the wellbeing of disadvantaged communities. Thus, adult learning is believed to equip and provide people with the necessary skills to do away with poverty and improve their life situations (UNESCO, 2015).

The second Global Report on Adult Learning and Education, gathered data from one-hundred and forty-one (141) countries, being the first international report to monitor progress in promoting adult learning and education (ALE) since countries adopted the 2009 Belem Framework for Action (UNESCO Institute FOR Lifelong

Learning, 2013). Meanwhile, leaders of the world have agreed on a holistic new vision for the future education and adult learning, notably for achieving the Agenda for the Sustainable Development Goals by 2030.

In Africa, literacy is supposed to conform to the objectives of the African Union's Agenda 2063, one of the thrusts to make teaching and learning an important sector for the continent's development (Habou, 2017). Habou indicated that a number of practical and administrative policies can be identified, including but not limited to the following:

- **Curricula development**: The new curricula should be deep-rooted in African culture, values and social unity.

- **Use of technologies** to quickly adjust to new tasks in life.

- **Expand the variety of training courses** and allow learners gain skills in order to contribute to society.

- **Regular post-literacy learning** so that reading and writing are seen as part of a constant process and an active way to prevent setback into illiteracy.

- **Politically devoted administrations** and better control of literacy led by African Governments.

- **Innovation**: design and distribute best practices and fruitful practices is a significant factor.

1.1.1 Adult Education System in Ghana

Adult education is a training in which participants engage in regular and self-educating events in order to gain new forms of knowledge, skills, attitudes, or values (Sharan & Ralph, 2007). It is any form of learning beyond traditional schooling, including how to read, write and personal fulfillment as a lifelong learner. Adult learning can be in three contexts as follows:

- *Formal:* - it is an organized learning which is structured to conform to education and training system of a country usually with a set curriculum that takes place in training institutions. It is a full-time education and is planned as a continuous process with defined stages of lower and upper primary, secondary and tertiary education.

- *Non-formal*: it is an organized but non credential lifelong learning which equips individuals and groups with occurs outside the formal school system. The learning prospects that cater for persons of all ages may be delivered at the workplaces and through events of civil organizations and groups. It may be short in duration or low intensity and may be provided in the form of short courses, workshops and seminars.

- *Informal education:* - day to day learning activities related to work, family, community or leisure (Bruce, 2006). It is neither a full-time education nor a planned and continuous process. Stages of the learning might not be defined in primary, secondary or tertiary education.

Adults are seen as mature, self-directed and therefore have knowledge and life experiences which provide them a foundation of learning. In Ghana, Non-Formal Education Division (NFED) of the Ministry of Education is responsible for issues of Adult Education System and lifelong activities. UNESCO (2006) defines Non Formal Education as "any organized and sustained activity that does not correspond exactly to the definition of formal education. As part of its mandate, the Division provides functional literacy in English and in 15 Ghanaian languages for out of school youth and adults especially females within the ages of 15 to 45 years and above (Oxenham, Diallo & Katahoire, 2002). In addition to this, occupational skill literacy is provided to sustain

learners' interest in the classes as well as creating opportunities to enable learners to put what is learnt into practice and earn livelihoods.

Apart from literacy in reading, writing and numeracy skills, development information in the areas of life skills/health issues, occupational skills and civic awareness and good citizenship skills are delivered. Lesson delivery is through face-to-face approach led by facilitators and a group of about 25 learners.

1.1.2 Adult learners and ICTs

A study in Finland revealed that traditional sources of information such as radio, television, text television, video and telephone still have a leading role as sources of information and communication in relation to internet. Nevertheless, people use both the traditional and modern ICTs to study in their homes (Matti Sinko & PS-viestintä Oy, 1999). Satoshi indicated that Internet use via personal computers has a displacement effect on information acquisition from radio (Satoshi Kitamura, 2013). In the fields of consumer and health communication research, many researchers have focused on the Internet and the ways in which its use has spread (Huang et al., 2009). The Internet has also attracted considerable attention in the field of health communication research as a means for adults to read and improve health care delivery (Heaton L., 2011). According to Solomou (2017), ICT opens up new possibilities for adult learners who proceed from face-to-face, to blended and online mode of learning. With the use of ICTs, learning can be done at any time, any place and at flexible pace (Howard & Scott, 2017).

Using internet and google engine, Learners can study materials they prefer. Learning is more customized, as each learner can appropriate it to their own needs. With ICT, learners can search for new content, in addition to the course as the instructor is the facilitator and not the source of all knowledge.

ICTs are powerful tool for extending both formal and non-formal educational opportunities (Tinio, 2003), strengthen the relevance of education to the increasingly digital workplace and raise adult educational quality by, among others, helping make teaching and learning into an engaging, active process connected to real life. However, the experience of introducing different ICTs in the learning-centres and other adult educational settings all over the world over the past several decades suggests that the full realization of the potential educational benefits of ICTs is not automatic. The effective integration of ICTs into the adult educational system is a complex, multifaceted process that involves not just technology but also curriculum and pedagogy, institutional readiness, facilitators' competencies and long-term financing, among others.

It is stated that in all age groups, males use information technology at home more than females. However, both males and females face problems in controlling the components of the computers (Matti Sinko & PS-viestintä Oy, 1999).

This research seeks to identify the specific ICT tools adult learners prefer to use as source of information and learning, appropriate delivery methods adult learners fine comfortable for acquiring information and the level at which learners will accept the integration of emerging ICTs into Adult Education delivery.

1.2 Statement of the Problem

Countries such as Canada, United Kingdom, United States of America etc., have successfully exploited ICT for the promotion of Adult learning especially to remote and hard to reach communities (GIFEC, 2013). Between 1997 and 2000, International Development Research Centre (IDRC), Acacia programme established 35 tele-centres in Benin, Tanzania, Mali, Uganda, Mozambique, Senegal and South Africa with belief

that they would bring ICT closer to the people in the rural and urban cities of these selected African countries. Also, local entrepreneurs and elites in these countries established tele-centres for people to access information (Tokunbo Ojo, 2005).

A study indicates that, University of Ghana launched Distance Education Programme in 2007 and is currently running in 10 regional centres in Ghana by the Institute of Adult Education now known as the Institute of Continuing and Distance Education. Though, the programme was designed for workers to sit in the comfort of their homes and offices to access lecture notes, interact with lecturers as well as submit their assignments online the purpose is defeated due to lack of ICTs infrastructure. Students are forced to travel long distances to attend face-to-face classes and assignments are either hand-delivered or mailed by post. Those who cannot afford to leave their workplace may drop out of the programme (Agyemang & Dadzie, 2010).

The unfortunate state of the ICT situation existing at the University of Ghana is much better than that of the Non-Formal Education Division in the country. The country is faced with varied difficulties in its quest to realize Sustainable Development Goal for education (SDG 4) 2030 which is to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. The potential of using ICT to implement literacy programmes for Adult learning have been explored by various organizations including public institutions, civil society organization, community-based organization and the media using radio, TV and community information vans. Consequently, many people are using emerging ICTs for learning and promoting Adult Literacy Programmes. Interestingly, while new ICTs are emerging as potential tools for the promotion of Adult literacy programmes, empirical data on the effects of the existing ICTs used for the promotion of Adult literacy and education is yet to be established (GIFEC, 2013; Opong-Tawiah, 2010). The researcher's personal

observations and reading of available literature have clearly indicated that, the Non-Formal Education Division of the Accra Metropolitan Assembly has a much more challenges of integrating emerging ICTs in Adult Literacy Programmes (Ministry of Communication, 2004). The underlying factors to this state of affairs are unclear because of the dearth of literature. Therefore, the research seeks to unravel the factors that affect the integration of emerging ICTs in Adult Literacy Programmes.

1.3 Objectives of the Study

The objectives of the study were to:

1. Identify specific ICT tools adult learners prefer to use as source of information and learning.

2. Discover ICT delivery methods adult learners find comfortable for acquiring information

3. Detect the level at which learners will accept the integration of emerging ICTs into Adult Education delivery.

1.4 Research Questions

1. What specific ICT tools do adult learners prefer to use as source of information and learning?

2. Which ICT delivery methods do adult learners find comfortable for acquiring information?

3. What will be the level of learners' acceptance of the integration of emerging ICT into Adult Education delivery?

1.5 Significance of the Study

Even though, researches have been conducted into emerging ICT in the world, none is known about the integration of the emerging ICT into Non-Formal Adult Education Programmes in Ghana. It is therefore essential to have an in-depth knowledge on how emerging ICT can be integrated into Adult Education Programmes in the AMA. The findings of the study will;

- Inform policy makers about the integration of ICT into Non-Formal Adult Education Programmes in order to formulate laws to improve upon the delivery of Adult Education Programmes in Ghana.

- Disclose to programmes implementers on emerging ICT adults prefer as a source of information and learning and delivery methods needed to be adopted into their programmes.

- Expose to learners and other beneficiaries of Non-Formal Adult Education Programmes on emerging ICT and its integration into their Programmes for their benefit.

- Help extend knowledge, skills and attitude about emerging ICT and their integration into Non-Formal Adult Education Programmes to learners and researchers.

1.6 Delimitations of the Study (Boundaries of the Research)

The topic is centered on integration of emerging ICTs into Non-Formal Adult education Programmes and not any other type of educational Programmes.

1. The study seeks to explore the various strategies through which emerging ICTs can be integrated into Adult Education Programmes.

2. The study is delimited to learners of Non-Formal Adult Education in the Accra Metropolitan Assembly only.

3. Questionnaire is the relevant instruments for the study.

1.7 General Layout of the Dissertation

The study is in five chapters ranging from one to five. Chapter one covers introduction of the dissertation, the problem statement, three objectives of the study, three research questions and significance of the study. Chapter two is the literature review on the three research questions. Chapter three discusses the methodology of the study. Chapter four is the analysis of data and interpretations. Chapter five is the conclusions and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

Information and Communication Technologies (ICTs) have impacted meaningfully in every sphere of human endeavor and have significantly changed the practices and processes of virtually all forms of activities including education. The purpose of this chapter is to identify specific ICT tools which adult learners prefer to use as sources of information and learning, identify ICT delivery methods adult learners fine comfortable for acquiring information and identify the level at which learners will accept the integration of emerging ICTs into Adult Education programme delivery. When the objectives are identified, it would be used to solve problems of learners Location, instructional period and mix-ability class that triggers dropout rate of leaners at the NFED.

2.2 Information and Communication Technology (ICT)

Goldfarb (2006) opined that information is a valuable resource required in any society; thus, acquiring and using information are critical and important activities. Users of information use it for different reasons. Some use it for health, others use it for advancement in knowledge, politics, farming and entertainment. Information needs a medium to be disseminated from one location to another and from one user to the other. Issa (1997) affirmed that information has to be transmitted through channels to users regardless of their location around the globe.

Improvement in technological equipment has made it possible for human beings to transfer information irrespective of their locations. This is known as Information and Communication Technologies (ICTs)-which include radio and television, as well as

newer digital technologies such as mobile and smart phones, computers and the Internet—has been touted as potentially powerful enabling tools for adult educational change and reform.

Other tools that make it possible for the computers devices to communicate are system and application software and platforms of varied forms. The key among them are interactive transaction-based application, embedded control systems, windows, android, Facebook, WhatsApp to mention but a few. Irrespective of the numerous ICTs flooding the globe, adult learners prefer specific ICT devices and tools as source of information and learning to others

2.3 Electronic Devices

An electronic device is any object which has transistors or silicon chips, capable of controlling the electric current passing through it and creating, transmitting or receiving information. This includes; computers, television, radio, projectors, speakers to mention but a few.

2.3.1 Radios

Radio is an object which allows communication to take place at a distance using the radiation of electromagnetic waves or wireless medium. The information travels through the space or atmosphere. Today, radio is used in cell phones, Global Positioning System (GPS), satellite radio, broadcast television, microwave ovens, some remote controls and radar.

A study conducted to assess the use of radio and other means of information transmission revealed that, radio is one of the most important equipment in information distribution. Information transmission through radio reaches a large number of persons

regardless of their locations; it promotes awareness on political and economic issues. Using radio, people become adequately informed about the government's programmes and activities.

According to the researcher, the cost of accessing information through radio, television and mobile phone were not expensive as compared to the use of internet, satellite and cable television. The study revealed that, radio was mostly used to access information followed by mobile phone, television, newspaper, social network, satellite and cable television followed by the internet (Familusi, 2014).

2.3.2 Televisions

A study was conducted to find out preference for available mass media outlets to communicate agricultural information to rural farmers, to assess improved techniques of growing crops, the methods of cultivation, storage of crops and conservation of soil. It holds that farmers prefer television over other mass media channels as a source of information and learning (Egbule & Njoku, 2001).

According to Moeller (1996), a study in conjunction with existing literacy programmes confirmed that television can induce viewers to engage in literacy practice, and alter their attitudes about learning to read, write and perform basic arithmetic. He advised that, television program should be designed to reflect learning activities such as note taking and learner interaction with the television program.

Bryant, Alexander and Brown (1983) suggested that, one television channel carries the primary educational messages and other representing redundant information. In order to accommodate large number of learners, it may be most appropriate to select television programmes with intermediate pace and make special provisions for slower learners to review materials.

2.3.3 Computers

Carter, Greenberg & Walker (2016) conducted a study on the effect of computer usage on academic performance in the US Military Academy. The study excluded computer devices in randomly selected learning centres. The study indicated that, using computer equipment in the classrooms reduced final exam scores, though Internet access and their host laptops and tablet computers attract the best students to the institution.

They stated that, though e-classrooms encourage learners to watch embedded videos, follow links to read articles on the Internet and use their entire curriculum with them at all times, the system provides distractions in the learning centres. However, the technology increases workers competency and organizational productivity. Interestingly, they also find evidence that the use of computer is harmful to male learners as well as those who entered the course with high cumulative averages - GPAs.

Nevertheless, a study was made on Tooth Morphology which is a computer-assisted learning program designed to teach the anatomy of the adult dentition. The research was tested whether Tooth Morphology could teach dental anatomy to a group of first-year dental students as well as the traditional lecture running parallel with another group.

Forty-five of first-year dental students were selected for the exercise in which twenty-three (23) students were randomly allocated to the Tooth Morphology group to use the computer-assisted learning program and did not attend lecture and the remaining twenty-two (22) group did not use Tooth Morphology but attended the traditional lecture.

The study revealed that, the Tooth Morphology group had a final exam average of 90 and the lecture group also had a final exam average of 90. The averages showed that the two groups' scores were statistically equal. It was therefore concluded that, Tooth Morphology, in combination with interactive class meetings, replaced the traditional lectures. This view is contrary to the findings Carter et al., (2016).

2.3.4 Mobile Phones

A study conducted by Costa, Ojala and Korhonen in 2008 on Mobile Lecture Interaction (MLI) software has it that, some students could not interact with their instructors and find it difficult to ask questions as well. It is mentioned that lack of interaction between the tutor and learner has a negative result on the learning motivation of the learners in the traditional lecture setting.

A solution for improving communication in a meaningful and cost-effective way leads to the provision of Mobile Lecture Interaction (MLI) application. The MLI is made up of a learner application for a standard personal mobile phone and a teacher application running on a PC. Using the mobile application, a learner votes to support other learner's previous questions. The teacher application which presents and alerts the instructor of popular questions received votes from other learners. The instructor can then pick and respond to the questions (s) he wishes to answer in detail. As a result, students who could not ask questions in class interacted with their tutor on mobile phones (Costa, Ojala & Korhonen, 2008). Masuki et al citing Lehr (2007) mentioned that mobile phones which offer mobility and security to users are very necessary for development purpose.

2.4 Internet

A research was conducted by Ibrahim, Koki, Sani, and Bala (2018) to examine media preferences among students of Kano State Polytechnic during the 2016/2017 academic session. The study was informed by the inadequacy of literature on the topic in the developing countries. Data collected were analyzed, interpreted and it was found that, with regard to media usage, Internet is the most preferred source of information for the respondents, followed by radio and television stations respectively (Ibrahim, Koki, Sani, & Bala, 2018). This view goes contrary to the finding of Familusi, (2014) who stated that radio was mostly used to access information followed by mobile phone, television, newspaper, social network, satellite and cable television followed by the internet.

2.5 Social Media

Social Media are interactive computer-mediated technologies that facilitate the creation and sharing of information, ideas, career interests and other forms of expression via virtual communities and networks. Social media websites, with over 100 million registered users, include Facebook, YouTube, WhatsApp, WeChat. (Pavlik & MacIntosh, 2015).

Others are *Instagram* which is a photo and video sharing social media app. It allows you to share a wide range of content such as photos, videos and stories. It has also recently launched IGTV for longer-form videos. QQ is an instant messaging platform that is extremely popular among young Chinese. The rest are Tumblr, Qzone, Tik Tok, Sina Weibo, Twitter, LinkedIn, Viber, Snapchat,

2.5.1 Facebook

A research was conducted to engage lecturers with the use of Facebook (FB) and WhatsApp platforms in teaching and learning. In the study, it is mentioned that Universitas Terbuka's Face-to-face group meetings were replaced by online discussions where Learning Management System (LMS) such as Moodle, electronic mailing list, Manhattan Virtual Classroom (MVC) platforms were used to deliver online tutorials. The discussion is generally led by students, and the instructor acts as a facilitator. Moffett, Claxton, Jordan, Mercer, and Reid (2007) noted that students who are quiet in face-to-face class meetings are most often the most expressive in online discussions.

However, the system became very slow and inconvenient. As a result, some students created *Facebook* (FB) and W*hatsApp* (WA) accounts for their discussions but lecturers always rejected invitations from students to be friends or group members, even if the student needed to communicate something important to them. Students assumed that the lecturers routinely ignored friendship requests from their students in order to keep personal information on their profiles private from students, and those teachers preferred to use the online tutorial to interact with students. Whereas students prefer Facebook for information and learning, lecturers prefer LMS to protect their personal profile.

2.5.2 WhatsApp

WhatsApp social media, among others has become dominant factor in today's digital world (Yeboah, Horsu & Abdulai, 2014). In their research to ascertain the Usage of WhatsApp and voice calls among students, Yeboah et al., established that students are more familiar with voice call than WhatsApp. However, WhatsApp was more

preferred to voice calls, in situations where both features are used, with the reasons that, it is more convenient, effective, easier, reliable and cost effective. The research further revealed that, students use WhatsApp to indicate their locations, coordinate meetings, perform coursework, exchange private information and arrange for online meetings among others.

Again, they stated that, WhatsApp is a free application that works on other platforms and is being widely used among learners to send files such as photos, videos, audios along with simple text messages.

Gon and Rawekar (2017) conducted a study to assess the affectivity of WhatsApp social media in delivering knowledge to learners and to compare the improvement of knowledge gain through e-learning and didactic lecture. It was observed that WhatsApp has become a new and convenient tool for teaching and learning activity and the learning can be done anytime, anywhere. Though, there is no significant difference between gain of knowledge from WhatsApp or didactic lectures, advantages out pars the disadvantages. A few disadvantages, like message flooding and eyestrain can be overruled by involving a few members in the group and using bigger screens (Gon & Rawekar, 2017).

In another WhatsApp study which researched the degree to which pre-service teachers can use WhatsApp Platform to make a viable learning environment without teacher interference. It was discovered that integrating WhatsApp application in the learning environment does not naturally improve learning. Nevertheless, WhatsApp application should be utilized in specific conditions so as to yield the ideal results. It uncovered that members didn't pay attention to their participation seriously for few reasons—most remarkably, the nonappearance of instructor.

2.6 Application Software (Microsoft Office Suite)

A study was conducted to assess students' preferences for PowerPoint presentation structure in undergraduate classes. In the research, data were collected from students at two educational institutions and analyzed. It holds that, students accepted the utilization of PowerPoint as a tool that enhanced their learning because the class was more organized, clear and interesting. Also, students rated the professor high and indicated that they would like to take another class from the professor when he used PowerPoint (Apperson, Laws, & Scepansky, 2008).

Also, Yilmazel-Sahin (2007) conducted a study to investigate problems related to the usage of Microsoft (MS) PowerPoint software in teacher education and drew attention to the handouts that accompany PowerPoint presentations. In the study, graduate and undergraduate teacher education students were interviews and also questionnaires were administered to seek their views on the use of PowerPoint and related hand-outs. The results indicated that both graduate and undergraduate students' perception on PowerPoint as a learning and teaching tool was good (Apperson, et al., 2008). However, in Yilmazel-Sahin's investigation, there was critical contrasts between the view of graduate and undergraduate students, with undergraduates reporting less class discussions when PowerPoint is utilized.

Most of the students said that handouts going with PowerPoint presentations were significant for their learning. The study additionally uncovered that undergraduates, in contrasted with graduate students, do not take much notes during a PowerPoint presentation if they receive a handout. It further showed that, a skeleton of the PowerPoint presentations without giving total lecture notes, were seen as the best method to encourage dynamic learning and note-taking, in the students' perception (Yilmazel-Sahin, 2007).

2.7 Learning Management System (LMS)

A learning management system (LMS) is a cloud-based software application which provides an instructor with a way to create and deliver content, monitor student involvement and performance. LMS provides interactive features for threaded discussions, video conferencing, and discussion forums. The framework gives a place to learn and teach without relying upon the time and space boundaries. LMS is an application for the organization, documentation, following, announcing and conveyance of e-learning training programs (Ryann, 2009). An educational LMS is designed to deliver instructor led courses which includes two-way interactions between learners and instructors and also between learners and other learners. Figure 1 represents a use case diagram indicating the interaction of the system with various users in a learning management system.
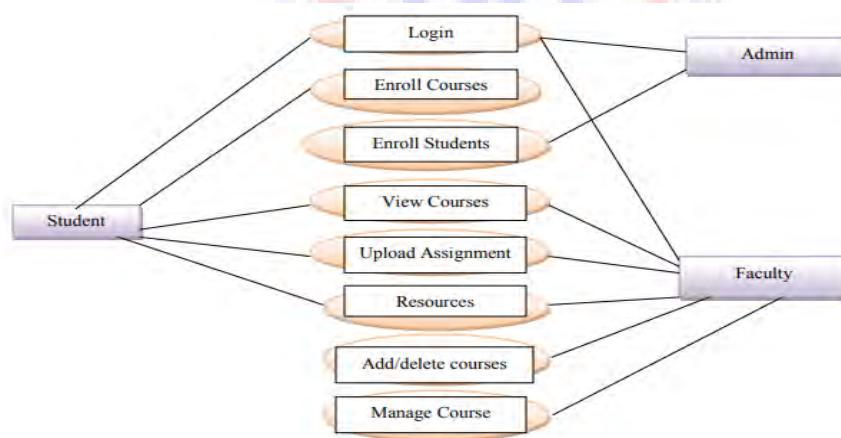
Figure 1: Use case diagram of a learning management system

With the improvement of Computer Assisted Learning, LMSs are gaining popularity as a convenient medium for delivering and managing teaching and/or training to the distant learners. However, Sharma and Vatta established in their study that, current LMSs lack some functionality for use as teaching and learning tool (Sharma & Vatta, 2013). However, in his research, Sclater, (2008) mentioned in Web 2.0 Personal Learning Environments and LMSs, that the impossibilities in LMS

environments are now possible in Web 2.0 Learning Environments. In another study, the use of mobile LMS of ITaleem in International Islamic University in Malasia reveals learner's preference of using LMS on mobile tools platform (Sahrir, Zainuddin & Nasir, 2016).

2.8 Google Classroom

Dube (2017) collected data from final year undergraduate students and conducted a research on 21st Century Students' Educational ICT Preferences. He indicated that, the students prefer teaching and learning strategies that enable them to actively participate in both problem solving and knowledge creation. He further found out that students prefer emerging technologies such as Google classroom instead of the learning management systems (LMS), YouTube video supported lectures and any other electronic content compatible and accessible from their ubiquitous mobile devices to enable content access, independent of space and time and without heavy dependence on the internet.

2.9 YouTube

A study conducted by Eynde, Crauwels, Demaerel, Eycken, Bullens, Schrijvers and Toelen (2019) focused on Videos as a Source of Information for Medical students. The research indicated that medical students process abstract information and need visual representation to understand the abstract concepts. YouTube hosts the audio-visual materials which support source of information to complement textbooks and academic lectures.

Furthermore, the researchers stated that YouTube channels with educational videos should provide the most quality and appealing resources. Eynde et al., (2019) recommended that, Students and educators should be aware of the quality of available

videos collected on the channels for medical students since the YouTube videos are most preferred to understand the abstract medical concepts and it is currently the second most visited websites to internet users.

2.10 Video Conferencing

Traditionally, teachers would invite guests into their classrooms to speak with their students. Teachers seek content and experiences from an expert in a field for their students and students appreciate having a new voice and perspective from which to learn. While Mitch believes that teachers should welcome experts to explain specifics in classrooms, technology has made it possible for learners to connect with specialists from around the globe using applications such as Skype, zoom, YouTube and Google Hangout (Champagne, 2013).

Technology is a global tool which assumes a major role in the lives of learners. There is a need to recollect, that technology is just advantageous in the event that it supports sound pedagogy and allows learners to do things they could not previously do. School is an important environment in which students participate in a wide range of computer activities, while the home serves as a complementary site for regular engagement in a narrower set of computer activities (Kent & Facer, 2004).

A number of people considered ICT as a powerful tool for educational change and reform which indicate that an appropriate use of ICT can raise educational quality and connect learning to real-life. Learning is an ongoing lifelong activity where learners change their expectations by seeking knowledge which departs from traditional approaches (Weert & Tatnall, 2005). Kate Mckenzie said that ICT in education is the key to unlocking the skills and knowledge of our future generation of young people. It is the tool for learning for the 21st century **(**Daviestoheeb, 2014).

2.11 Categories of ICT Mediated Teaching and Learning

Broadly speaking, technology-enhanced training can be categorized into two, namely fully online education (purely e-learning) and partially online education (combination of face-to-face and e-learning) also known as blended learning format. (Ali, 2013).

2.11.1 Fully online education (purely e-learning)

E-learning is electronic based education which brings trainers and trainees from diverse surroundings together (Driscoll, 2002). The fully online model is implemented as synchronous and asynchronous distance education environment.

2.11.2 Synchronous Distance Education Environment

According to Karal, Çebi and Turgut (2011), synchronous distance education occurs where learners are in a distance education center interact with an instructor at different place but during the same time using technological tools like video conferencing devices, record cameras and a brilliant smart board. A coordinator assists the learners in a distance education center where the learning takes place. A research was conducted on Perceptions of learners who take Synchronous Courses through video conferencing using a case study.

In the study, a total of nine students who participated in a course via synchronous distance education from two different undergraduate levels were interviewed and observed. The data was analyzed and findings indicated that students faced problems, ranging from sound, speed connectivity, camera angles and cameras issues. The students did not have advance information about the synchronous distance education programme (Karal, Çebi & Turgut, 2011).

Synchronous distance education offers a training which is closer to the traditional class environment and permitting immediate feedback. Video conferencing is characterized as interactive and synchronous voice, video and information transfer between at least two communication lines (Gough, 2006). This system which connects learners and instructors from various areas is cost effective. Moreover, it offers learnersto relate their experiences to each other and create a feeling of togetherness alongside the advantage of master guidance.

The quality of video conferencing system depends on the type of technology being used and the bandwidth of the existing internet that impact the quality of education and learner – instructor collaboration level (Martin, 2005). Video conferencing is progressively developed compared with different strategies for distance education, as far as constant connection, relationship, inspiration and collaborative learning (Brown & Liedholm, 2002).

Online education is education that takes place over the Internet. It is often referred to as "e-learning" among other terms. However, online education is one option under the broader category of distance education. Online learning gives learners freedom to work from the comfort and convenient of their homes. Working professionals who are unable to leave work in order to pursue full time, campus study, benefit most from online courses of study. Learners/students receive and submit coursework online and interact with fellow students and faculty by email or other forms of electronic communication. It is basically a web-based system that makes information or knowledge available to users or learners and disregards time restrictions or geographic proximity (Sun, et al., 2007).

E-learning is emerging as the new paradigm of modern education. Worldwide, the e-learning market has a growth rate of 35.6%. This study developed an integrated model with six dimensions: learners, instructors, courses, technology, design and environment. Numerous accessible e-learning materials are static in nature, for example, static PowerPoint presentations or unadulterated book-like content just transferred on establishment's or instructor's site. In any case, the e-learning units have begun to design and develop interactive instructional learning materials and i-PDFs which are adaptive in nature and hence are mobile and iPad friendly.

The interactive element includes the following features; Click and reveal, Pop-ups, Tabs, Tooltips, Type-in textboxes, Dropdowns, Animations etc. It can be used as supportive and just-in-time learning, for students/learners academic progress (Vishakha Naik, 2016).

2.11.3 Blended learning

The mix of e-learning with face-to-face modes of instruction, which is known as blended learning is presently a built-up learning technique (Lioyd-Smith, 2010). In their broad research on blended education in the United States, Allen et al indicated that almost 55% of all institutions offer at least one blended course, while 64% offer at least one online course. In their definition, blended courses or programs are those having somewhere in the range of 30% and 79% course courses conveyed on the web, while face-to-face instruction incorporates those courses wherein 0 to 29% of the content is offered online. Unadulterated online programs are characterized as those having at any rate 80% obviously content conveyed on the web. As indicated by this definition, most of courses offered in engineering schools, even those having incredible Learning Management Systems (LMS), is probably going to be considered as face-to-face, rather than blended.

Blended learning has benefits which can be gathered in the following:

a) More effective: Many researchers in educational technology have demonstrated that blended learning is progressively compelling from a learning perspective and show positive outcomes for students.

b) Improves learner's fulfillment, alongside their learning.

c) It is self-managed and doesn't require full participation on the grounds that the learner can see missed classes. This self-pacing likewise brings about a higher finish rate.

d) It gives a genuine possibility of autonomous learning.

e) It helps in changing learning from instructor to learners focused by giving the students some component of command after some time, place, pace and path. This is in accordance with AGU mission of being student-centered.

f) Expands the choice for more prominent quality and amount of human cooperation.

2.11.4 Learners' acceptance of ICTs in learning

Schools make use of ICT devices and tools to interact, create, distribute, save and manage information (Blurton, 2000). Digital literacy is being built through the integration of ICT into schools in many countries, some known educational applications of ICT include:

- *One laptop per child:* they are less expensive laptops which have been designed for use in school on a one to one basis with specifications such as lower power consumption, a special re-programming, low cost operating system and mesh network functions (Zuker & Light, 2009). Though, the policy of One-laptop, one-child is accepted worldwide, it may be too costly for some developing countries to implement (Warschauer & Ames, 2010).

- *Tablets:* These are portable personal computers with a touch screen and inexpensive learning software ("apps") which are downloaded onto the portable device, making them a versatile learning tool for adult learners (Nirvi, 2011). The most effective apps developed to provide creative and individual options for learners to express their views are being used in and outside classrooms but not formalized (Goodwin, 2012).

- *Interactive White Boards or Smart Boards*: Interactive white sheets permit projected PC images to be shown, controlled, hauled, clicked or duplicated. At the same time, manually written notes can be taken on the board and saved for later use. Interactive white boards are related with entire class instruction rather than student-centered activities (Turel & Johnson, 2012.) Student commitment is commonly higher when ICT is accessible for Student use all through the classroom, showing their acknowledgment of ICT integration in education (Beilefeldt, 2012).

- *E-readers*: E-readers are electronic devices that can hold several books in in digital form, and they are progressively used in the conveyance of reading material (Jung et al, 2011). Both skilled and timid students have had positive reactions to the utilization of e-readers for autonomous studies (Miranda et al, 2011). Highlights of e-readers that can add to positive use incorporate their versatility and long battery life, reaction to content, and the capacity to characterize obscure words.

- *Flipped Classrooms*: The flipped classroom model, including lecture and practice at home by means of computer-guided and interactive learning exercises in class, can take into consideration an extended educational program.

Student perceptions about flipped study halls are certain, as they lean toward the helpful learning exercises in class over lecture (Bishop & Verleger, 2013).

- *Internet connection:* a study by Singh & Chan indicated that a classroom connected with internet can be more effective for students' learning where lesson materials are played back in the form of videos and YouTube at their own pace and comfort (Singh & Chan, 2014).

CHAPTER THREE

METHODOLOGY

3.1 Overview

The research design was descriptive explanatory survey which was used to identify the ICT tools, delivery methods and learner's acceptance of the integration of the ICTs into Non-Formal adult education delivery programme. Population was drawn from both local and English language classes using a sample size of 320 participants. The instrument for the study was questionnaire which measured quantitative data collection and analyzed with SPSS.

3.2 Research Design

Descriptive explanatory survey research design which focuses on explaining the aspects of study in a detailed manner was used for this research. The design was used because it helped in the identification of the preferred emerging ICTs being integrated into Non-Formal adult education programmes, the various ICT delivery methods being integrated and the level of learners' acceptance of emerging ICT integration into Non-Formal Adult Education delivery.

According to Akhtar (2016), in research design, it is necessary to recognize the type of evidence required to answer the research question in a reasonable way. Also, Bhat's studies indicated that, the type of research problem an organization is facing will determine the research design. Variables, designated tools to gather information, how the tools will be used to collect and analyze data, and other factors are decided in research design on the basis of a research technique (Bhat, 2019).

3.3 Population

One-thousand, nine-hundred and twenty-five (1,925) learners constitute the population of the study and was drawn from Forty-five (45) local and ten (10) English language classes in the Accra Metropolitan Assembly (AMA) of the Non-Formal Education Division (NFED), Ministry of Education. The participants include learners, facilitators and an assistant who supported to administer the questionnaire.

3.4 Sample Size Determination

Krejcie and Morgan developed a sample size determination table which helped in selection of sample size from a population. According to their study the table is 95% certainty and indicated that, a sample size of 384 is sufficient for a population size of more than 1,000,000 (Krejcie & Morgan, 1970). The larger the sample, the less the likelihood biased findings. However, diminishing returns can quickly set in when samples get over a specific size which needs to be balanced against (Gill et al 2010). Hence, in this study, three-hundred and twenty (320) participants were drawn from learners representing the entire population of more than 1,983. The rationale behind the selection of the sample size of (320) participants was considered since it was too expensive and time consuming to get the cooperation of the entire population to participate in the study. As a result, decision about a population based on a representative sample of (320) was used to represent the entire statistical population of interest, yielded a reliable result.

3.5 Research Instrument

A questionnaire was used as an instrument for the study. This instrument was divided into four (4) sections as seen in the table below;

No.	Section	Activities
1	A	Biographical Characteristics of Respondents.
2	B	ICT tools to be integrated into adult education delivery.
3	C	ICT delivery methods adult learners fine more comfortable for acquiring information
4	D	Learners acceptance of ICT integration into adult education programme

The instrument used was questionnaire to collect data from the learners of the Division because it allows collection of both subjective and objective data in a large sample of the study population in order to obtain result which is statistically significant, especially as resources of the study are limited. According to (Karim, 2014) though the questionnaire can measure both qualitative and quantitative data, it is more appropriate for quantitative data collection. The data collection was successful with the assistance from facilitators of the various classes.

3.6 Validity and Reliability

1. Items on the instrument were designed in line with the three objectives of the study.

2. The instrument was critically examined by colleagues.

3. Supervisor's comments were used to fine tune the questionnaire.

4. The instrument was pre-tested using a similar population who are learners and management of Action Remedial Institute in Accra. The pre-test exercise helped identify difficult and ambiguous words in the questionnaire and also helped estimate the ideal time needed for the data collection exercise.

3.7 Data Collection Procedure

In the long ran this research activity will turn to benefit the Non-Formal Education Division of the ministry of Education. As a staff, a memo was written and sent to the executive director of the Division, stating the purpose of the research and the possible benefit of the study to the organization. He therefore issued introductory letters which were sent to the Chief Information Technology Officer of the University of Ghana and the Country Director of Varkey Foundation for possible assistance. These two organizations have already integrated ICTs into lesson delivery and it was ideal to identify the ICT tools that have been integrated and the mode of operation of their system.

Also, a request was approved to administer questionnaires in fifty-five (55) Non-Formal adult education classes at the Accra Metropolitan Assembly (AMA). Appointment was booked with the learners who agreed and were met to answer the questionnaires with assistant from ten (10) trained facilitators who explained each question in details for the learners to express their thoughts and opinions. The dynamics and lovely interactions within the groups enrich the quality and quantity of information needed. Each of the class was engaged for 45 minutes and it took five (5) days to complete the exercise.

3.8 Data Analysis

The three-hundred and twenty (320) questionnaires were coded, entered and analyzed using (SPSS) version 20 and the result presented in tables, frequencies and percentages.

CHAPTER FOUR

LIMITATIONS, RESULTS AND FINDINGS

4.1 Introduction

This chapter presents the output of the data analysis of the study. The results and findings are presented in sections in accordance with the specific objectives of the study. The first section deals with the Biographical characteristics of the respondents. The second section determine the specific ICT adult learners prefer to use as source of information and learning. The third section determines ICT delivery methods adult learners find comfortable for acquiring information. The fourth section determines learner's acceptance of ICT integration in adult education. The results of the analysis of the data gathered are presented in tables, frequencies, and descriptive analysis.

4.2 Response Rate

The study thus administered 320 questionnaires for data collection of which all were properly filled and returned. This represented 100% percent overall successful response rates. Babbie (1990) suggested that a response rate of 50% is adequate 60% is good and 70% and above very good for analysis. This implies that 100% percent response rate was very appropriate for data analysis.

4.3 Limitations

Due to inadequate resources such as time and finance, the study did not cover the activities of the facilitators, administrators, persons with disability, children and learners who intend to acquire professional or technical skills. The above entities might be an area for further research. Also, the study excluded qualitative methods, and

employed only quantitative research method. The sample size of three-hundred and twenty (320) participants who were drawn from one-thousand nine-hundred and eighty-three (1,983) learners could have been extended to one-thousand (1,000) participants if there were adequate resources.

4.4 Demographic Characteristics of Respondents

The first table discusses the demographic characteristics of respondents to provide a general overview of the respondents in the study. The Biographical characteristics of the respondents studied were Sex, Highest level of education, Age, Period of learning with NFED. These characteristics were studied to serve as the basis for the study and to put the study in context. Thus, the background information of respondents was deemed necessary because the ability of the respondents to give satisfactory information on the study variables greatly depends on their background.

Table 1: Demographic information of respondents (n = 320)

Items	Variables	Frequency	Percentage	Mean	Standard Deviation
Gender	Male	126	39.4%	1.39	0.489
	Female	194	60.6%		
Highest level of Education	Primary School	178	55.6%	1.69	0.845
	MSLC	62	19.4%		
	Secondary	80	25.0%		
Age Range	Below 15 years	16	5.0%		
	15-35 years	112	35.0%	2.69	0.776
	36-45 years	146	45.6%		
	46-60 years	46	14.4%		
Duration of being a learner with the NFED	1-5 months	80	25.0%	1.95	0.670
	6-10 months	176	55.0%		
	Above 10 months	64	20.0%		
Total		**320**	**100.0%**		

Source: Field survey, 2019

Table 1 shows the demographic information of the respondents which constituted 126 males and 194 females given 39.4% and 60.6% respectively with the mean of 1.39 and a standard deviation of 0.489. In this study, the female respondents outnumbered their male counterparts which confirmed the statement by Sanda (2014) that, majority of people in the world today who cannot read and write are assumed to be women.

However, in her study, Amina Sanda compared and analyzed the Participation of both males and females into Adult Basic Literacy Programme in Borno State. The researcher established that the male participation was 59% which was more than that of their female counterparts and contrary to her earlier assumption. While there is gender difference in terms of adult participation in literacy of 39.4% males and 60.6% females at AMA, Naciri (2010), held that, there are significant disparities in terms of attitudes and ICTs usage patterns. He mentioned that male learners have more confidence in using technology for learning than females.

According to Sherman (2000), though majority of ICT users are men, the gender gap is narrowing down gradually. Heimrath and Goulding (2001) found that female learners at Sheffield University felt that, a search using the Internet was difficult whereas male counterparts were happy to use the Internet to seek for relevant information. Primary, Secondary and MSLC were the highest educational levels of the respondents, constituting 178, 80 and 62 respectively with the Primary level capturing 55.6%, Secondary having 25.0% and MSLC scoring 19.4% with the mean and standard deviation of 1.69 and 0.845 respectively.

With respect to Age Range, 16 of the respondents were below 15 years, 112 were in the ages of 15-35, 146 were in the range of 36-45 and 46 were in the age range of 46-60 with the percentages as 5.0%, 35.0%, 45.6% and 14.4% respectively that gave

the mean of 2.69 and the standard deviation of 0.776. Assessing the periods for which respondents have been on the programme, it was discovered that, 80 learners had studied for 1-5 months, indicating 25.0%, 176 had studied for the period of 6-10 months indicating 55.0% whiles 64 had studied for more than 10 months indicating 20% with the mean of 1.95 and a standard deviation of 0.670.

4.5 Research Question One

What specific ICT tools do adult learners prefer to use as source of information and learning?

Table 2: Integration of ICT tools and success factors

Statement	SD F (%)	D F (%)	N F (%)	A F (%)	SA F (%)	Mean (STD)
Integration of Microsoft office suite into adult education programme delivery.	0	0	64 (20.0)	162 (50.6)	94 (29.4)	4.09 (0.697)
Integration of Projectors into adult education programme delivery.	0	32 (10.0)	80 (25.0)	192 (60.0)	16 (5.0)	3.60 (0.736)
Integration of Radios into adult education programme delivery.	0	0	66 (20.6)	174 (54.4)	80 (25.0)	4.04 (0.675)
Integration of Television into adult education programme delivery.	0	0	0	206 (64.4)	114 (35.6	4.36 (0.480)
Integration of Internet services into adult education programme delivery.	0	16 (5.0)	48 (15.0)	162 (50.6)	94 (29.4)	4.04 (0.802)

Source: Field survey, 2019.

Table 2 shows the integration of ICT tools and success factors of the respondents and are rated as being Strongly disagree (SD), disagree (D), neutral (N), agree (A), and strongly agree (SA) with their percentages of Frequency (F%), Mean and Standard Deviation (STD).

For the integration of Microsoft office suite into adult education programme delivery, none of the respondents strongly disagreed or disagree. 64 respondents, representing 20% were neutral, 162, representing 50.60% agreed and 94 representing 29.40% strongly agreed with the mean and standard deviation of 4.09 and 0.697 respectively which indicated that, adult learners are comfortable to use MS Office product (PowerPoint) as source of information and learning.

Similarly, a study conducted by Apperson et al. (2008) showed that, students wholly believed in the utilization of PowerPoint to facilitate their studies. The 50.60% of the respondents agreed that MS Office suite should be integrated into. It holds that, Also, students rated the professor high and indicated that they would like to take another class from the professor when he used PowerPoint. Also, Yilmazel-Sahin (2007) revealed that both students' perception on PowerPoint as learning and teaching tool was good as indicated by (Apperson et al. 2008).

With the integration of Projectors into adult education programme delivery, 32 respondents disagree with use and 80 were neutral, however, 192 agreed and 16 strongly agreed with 10.0%, 25.0%, 60.0% and 5.0% respectively having 4.36 and 0.480 as the mean and Standard Deviation.

With the integration of Radios into adult education programme delivery, no respondent disagreed with the use of radios, 66 were neutral, 174 agreed out of 320 participants and 80 strongly agreed to the integration of the radios with 20.6%, 54.4% and 25.0% respectively, constituting a Mean of 4.04 and Standard Deviation of 0.675.

In his research, Familusi, (2014) stated that, radio was frequently utilized to acquire information and learning, with mobile phone and television next in line, which is contrary to the current study.

With the integration of TV into adult education programme, 114 respondents strongly agreed, representing 35.6%, and 206 respondents agreed, representing 64.4%, having 4.36 and 0.480 as mean and Standard Deviation respectively. The 206 respondents out of 320 participants, representing 64.4% agreed that TV is the source of their information and learning which agreed with the findings of Egbule and Njoku, (2001) that farmers' prefer television over other mass media channels as a source of information and learning to assess improved techniques of growing crops, the methods of cultivation, storage of crops and conservation of soil.

With the degree to which learners agree or disagree with the integration of internet services into adult education programme delivery, 16 respondents disagreed, 48 were neutral, 162 agreed and 94 strongly agreed measuring 5.0%, 15.0%, 50.6% and 29.4% respectively, having a Mean of 4.04 and Standard Deviation of 0.802.

Table 3: Integration of ICT tools and success factors

Statement	SD F(%)	D F(%)	N F (%)	A F (%)	SA F (%)	Mean (SD)
Integration of Speakers into adult education programme delivery.	0	16 (5.0)	128 (40.0)	114 (35.6)	62 (19.4)	3.69 (0.838)
Integration of Computers into adult education programme delivery.	0	16 (5.0)	16 (5.0)	178 (55.6)	110 (34.4)	4.19 (0.747)
Integration of Android and smart Mobile phones (PDAs) into adult education programmes delivery	0	0	64 (20.0)	96 (30.0)	160 (50.0)	4.30 (0.782)
Integration of Digital and video cameras into adult education programme delivery	0	34 (10.6)	138 (40.0)	126 (39.4)	32 (10.0)	3.49 (0.815)
Integration of WhatsApp into adult education programme delivery	0	16 (50)	66 (20.6)	46 (14.4)	192 (60.0)	4.29 (0.961)

Source: Field survey, 2019.

Table 3 also indicated the Integration of ICT tools and success factors of the respondents.

With respect to speakers, the extent to which respondents strongly disagree, disagree, neutral, agree and strongly agree with the integration into adult education programme delivery are as follow; 16 respondents disagreed, 128 were neutral, 114 agreed and 62 strongly agreed, representing 05.0%, 40.0%, 35.6%, and 19.4% respectfully having 3.69 as Mean and 0.838 as Standard Deviation.

The extent to which learners agree or disagree with the integration of Computers into adult education programme delivery are as follows; 16 disagreed representing 0.5%, 16 were neutral representing 0.5%, 178 agreed representing 55.6%

and 110 strongly agreed representing 34.4% having 4.19 and 0.747 as mean and Standard deviation respectfully.

The extent to which learners agree or disagree with the integration of Android and smart Mobile phones (PDAs) into adult education programmes delivery are as follows; none of respondents strongly disagreed representing 0.0%, and none of them disagreed also representing 0%, however, 64 were neutral representing 20.0%, 96 agreed representing 30.0% and 160 strongly agreed representing 50.0% having 4.30 and 0.782 as mean and Standard deviation respectfully.

The extent to which learners agree or disagree with the integration of Digital and video cameras into adult education programme delivery are as follows; none of respondents strongly disagreed representing 0.0%, 34 of them disagreed representing 10.6%, 138 were neutral representing 40.0%, 126 agreed representing 39.4% and 32 strongly agreed representing 10.0% having 3.49 and 0.815 as mean and Standard deviation respectfully.

The extent to which learners agree or disagree with the integration of WhatsApp into adult education programme delivery are as follows; none of respondents strongly disagreed representing 0.0%, 16 of them disagreed representing 50.0%, 66 were neutral representing 20.6%, 14 agreed representing 14.4% and 192 strongly agreed representing 60.0% having 4.29 and 0.961 as mean and Standard deviation respectfully.

Table 4: Integration of ICT tools and success factors

Statement	SD F (%)	D F (%)	N F (%)	A F (%)	SA F (%)	Mean (SD)
Integration of Facebook into adult education programme delivery	0	16 (10.6)	64 (20.6)	78 (24.4)	144 (45.0)	4.04 (1.038)
Integration of Email into adult education programme delivery	0	50 (15.6)	96 (30.0)	112 (35.0)	62 (19.4)	3.58 (0.973)
Integration of Sakai or Google into adult education programme delivery	0	50 (15.6)	144 (45.0)	80 (25.0)	46 (14.4)	3.38 (0.916)
The availability of reliable ICT infrastructure are success factors for ICT integration into adult education programme delivery	0	16 (5.0)	16 (5.0)	114 (35.6)	175 (54.4)	4.39 (0.800)
Constant power supply is a success factor for ICT integration into adult education programme delivery	0	0	32 (10.0)	98 (30.6)	190 (59.4)	4.49 (0.672)

Source: Field survey, 2019

Table 4 also indicated the Integration of ICT tools and success factors of the respondents. With extent to which respondents strongly disagree, disagree, neutral, agree and strongly agree with the integration of Facebook into adult education programme delivery are as follow; no one strongly disagree, 16 respondents disagree, 64 were neutral, 74 agreed and 144strongly agreed, representing 0%, 10.6%, 20.6%, 24.4%, and 45.0% respectfully having 4.04 and 1.038 as Mean and Standard Deviation respectfully.

With extent to which respondents agree or disagree with the integration of Email into adult education programme delivery are as follows; none of respondents strongly disagreed representing 0.0% 50 disagreed representing 15.4%, 96 were neutral representing 30.0%, 112 agreed representing 35.0% and 62 strongly agreed representing 19.4% having 3.58 and 0.973 as mean and Standard deviation respectfully.

With extent to which respondents agree or disagree with the integration of Sakai or Google classroom into adult education programme delivery are as follows; none of respondents strongly disagreed representing 0.0%, and 50 of them disagreed also representing 15.6%, however, 144 were neutral representing 45.0%, 80 agreed representing 25.0% and 46 strongly agreed representing 14.4% having 4.38 and 0.916 as mean and Standard deviation respectfully.

The extent to which respondents agree or disagree with the availability of reliable ICT infrastructure are success factors for ICT integration into adult education programme delivery are as follows; none of respondents strongly disagreed representing 0.0%, 16 of them disagreed representing 5.0%, 16 were neutral representing 5.0%, 144 agreed representing 35.6% and 175 strongly agreed representing 54.4% having 4.39 and 0.800 as mean and Standard deviation respectfully.

The extent to which respondents agree or disagree with the Constant power supply as an engineering factor for ICT integration delivery are as follows; none of respondents strongly disagreed representing 0.0%, none of them disagreed representing 0.0%, 32 were neutral representing 10.0%, 98 agreed representing 30.6% and 190 strongly agreed representing 59.4% having 4.49 and 0.672 as mean and Standard deviation respectfully.

Table 5: Integration of ICT tools and success factors

Statement	SD F (%)	D F (%)	N F (%)	A F (%)	SA F (%)	Mean (SD)
The availability of reliable, affordable and fast internet service is a success factor for ICT integration into adult education programme delivery.	0	0	98 (30.6)	110 (34.4)	112 (35.5)	4.04 (0.810)
The availability of skilled personnel to handle ICT tools and process is a success factor for ICT integration into adult education programme delivery.	0	0	32 (10.0)	160 (50.0)	128 (40.0)	4.30 (0.641)
Effective training for facilitators is a success factor for ICT integration into adult education programme delivery.	0	0	32 (10.0)	160 (50.0)	128 (40.0)	4.30 (0.641)
High level of computer literacy among facilitators is a success factor for ICT integration into adult education programme delivery	0	0	0	162 (50.6)	188 (49.4)	4.49 (0.501)

Source: Field survey, 2019

Table 5 also indicated the Integration of ICT tools and success factors of the respondents. With extent to which respondents strongly disagree, disagree, neutral, agree and strongly agree with the availability of reliable, affordable and fast internet service is a success factor for ICT integration into adult education programme delivery are as follow; no one strongly disagreed or disagreed, 98 were neutral, 110 agreed and 112 strongly agreed, representing 0%, 0%, 30.6%, 34.4%, and 35.5% respectfully having 4.04 and 0.810 as Mean and Standard Deviation respectfully.

The extent to which respondents agree or disagree regarding the availability of skilled personnel to handle ICT tools and process is an engineering factor for ICT integration into adult education programme delivery are as follows; none of respondents

strongly disagreed or disagreed representing 0.0%, 32 were neutral representing 10.0%, 160 agreed representing 50.0% and 128 strongly agreed representing 40.0% having 4.30 and 0.641 as mean and Standard deviation respectfully.

The extent to which respondents agree or disagree that effective training for facilitators is a positive factor for ICT integration into adult education programme delivery are as follows; none of respondents strongly disagreed or disagreed representing 0.0%, 32 were neutral representing 10.0%, 160 agreed representing 50.0% and 128 strongly agreed representing 40.0% having 4.30 and 0.641 as mean and Standard deviation respectfully.

The extent to which respondents agree or disagree that high level of computer literacy among facilitators is a success factor for ICT integration into adult education programme delivery are as follows; none of respondents strongly disagreed or disagreed or were neutral representing 0.0%, 162 agreed representing 50.6% and 188 strongly agreed representing 49.4% having 4.49 and 0.501 as mean and Standard deviation respectfully.

Table 6: Integration of ICT tools and success factors purposes

Statement	SD F (%)	D F (%)	N F (%)	A F (%)	SA F (%)	Mean (SD)
Administrators' commitment and support to ICT integration are success factors for ICT integration into adult education programme delivery	0	0	64 (20.0)	112 (35.0)	114 (45.0)	4.25 (0.768)
The existence of supportive ICT policies and legislation are success factors for ICT integration into adult education programme delivery	0	18 (5.6)	78 (24.4)	64 (20.0)	160 (50.0)	4.14 (0.975)
Government support for ICT integration is a success factor for ICT integration into adult education programme delivery	0	18 (5.6)	16 (5.0)	110 (34.4)	176 (55.0)	4.39 (0.823)

Source: Field survey, 2019

Table 6 also indicated the Integration of ICT tools and success factors of the respondents. With extent to which respondents strongly disagree, disagree, neutral, agree and strongly agree that administrators' commitment and support to ICT integration are success factors for ICT integration into adult education programme delivery are as follow; no one strongly disagreed or disagreed, 64 were neutral, 112 agreed and 114 strongly agreed, representing 0%, 20.0%, 35.0%, and 45.0% respectfully having 4.25 and 0.768 as Mean and Standard Deviation respectfully.

Regarding the extent to which respondents agree or disagree that the existence of supportive ICT policies and legislation are success factors for ICT integration into adult education programme delivery are as follows; none of respondents strongly disagreed, 18 respondent disagreed representing 5.6%, 78 were neutral representing

24.4%, 64 agreed representing 20.0% and 160 strongly agreed representing 50.0% having 4.14 and 0.975 as mean and Standard deviation respectfully.

The extent to which respondents agree or disagree that Government support for ICT integration is a positive factor for ICT integration into adult education programme delivery are as follows; none of respondents strongly disagreed, 18 disagreed representing 5.6%, 16 were neutral representing 5.0%, 110 agreed representing 34.4% and 176 strongly agreed representing 55.0% having 4.39 and 0.823 as mean and Standard deviation respectfully.

Table 7: Integration of ICT tools and success factors

Statement	Mean	Standard Deviation (SD)	Relative Importance Index (RII)	Ranking
Constant power supply is a success factor for ICT integration into adult education programme delivery	4.49	0.672	1.00	1
High level of computer literacy among facilitators is a success factor for ICT integration into adult education programme delivery	4.49	0.501	1.00	2
The availability of reliable ICT infrastructure are success factors for ICT integration into adult education programme delivery	4.39	0.8	0.98	3
Government support for ICT integration is a success factor for ICT integration into adult education programme delivery	4.39	0.823	0.98	4
Integration of Television into adult education programme delivery.	4.36	0.48	0.97	5
Integration of Android and smart Mobile phones (PDAs) into adult education programmes delivery	4.3	0.782	0.96	6
The availability of skilled personnel to handle ICT tools and process is a success factor for ICT integration into adult education programme delivery.	4.3	0.641	0.96	7

Table 7: Cont'd

Statement	Mean	Standard Deviation (SD)	Relative Importance Index (RII)	Ranking
Effective training for facilitators is a success factor for ICT integration into adult education programme delivery.	4.3	0.641	0.96	8
Integration of WhatsApp into adult education programme delivery	4.29	0.961	0.96	9
Administrators' commitment and support to ICT integration are success factors for ICT integration into adult education programme delivery	4.25	0.768	0.95	10
Integration of Computers into adult education programme delivery.	4.19	0.747	0.93	11
The existence of supportive ICT policies and legislation are success factors for ICT integration into adult education programme delivery	4.14	0.975	0.92	12
Integration of Microsoft office suite into adult education programme delivery.	4.09	0.697	0.91	13
Integration of Radios into adult education programme delivery.	4.04	0.675	0.90	14
Integration of Internet services into adult education programme delivery.	4.04	0.802	0.90	15
Integration of Facebook into adult education programme delivery	4.04	1.038	0.90	16
The availability of reliable, affordable and fast internet service is a success factor for ICT integration into adult education programme delivery.	4.04	0.81	0.90	17
Integration of Speakers into adult education programme delivery.	3.69	0.838	0.82	18
Integration of Projectors into adult education programme delivery.	3.6	0.736	0.80	19
Integration of Email into adult education programme delivery	3.58	0.973	0.80	20
Integration of Digital and video cameras into adult education programme delivery	3.49	0.815	0.78	21
Integration of Sakai or Google into adult education programme delivery	3.38	0.916	0.75	22

Source: Field survey, 2019.

The RII is simply a mean score for an item, scaled to have a value between 1/A and 1, where A is the number of response categories. Therefore, mean score was computed for each item and sorted in the decreasing order and calculated as RII = Mean/ Highest.

4.6 Research Question Two

Which ICT delivery methods do adult learners find comfortable for acquiring information?

Table 8: Preferred ICT delivery methods for specific activities

Activity	Response	Frequency	Percent (%)
Learning how to read	Online	0	0.0
	Blended	272	85.0
	Synchronous	0	0.0
	Asynchronous	16	5.0
	Video-mediated	32	10.0
Learning how to write/type	Online	16	5.0
	Blended	210	65.6
	Synchronous	0	0.0
	Asynchronous	16	5.0
	Video-mediated	78	24.4
learning how to perform basic arithmetic	Online	0	0.0
	Blended	258	80.6
	Synchronous	0	0.0
	Asynchronous	0	0.0
	Video-mediated	62	19.4
learning hairdressing and dress making	Online	0	0 .0
	Blended	240	75.0
	Synchronous	16	5.0
	Asynchronous	30	9.6
	Video-mediated	34	10.6
Total		**320**	**100.0**

Source: Field survey, 2019

Table 8 identifies ICT delivery methods adult learners find more comfortable for acquiring information. For reading, respondents for blended ICT delivery methods are 272 which represent 85.0% whiles 32 respondents preferred Video-mediated

method representing 10.0% and only 16 respondent preferred Asynchronous method which represents 5%.

For learning how to write/type, out of 320 respondents, a good number of 210 respondents preferred Blended method, recording 65.6% followed by 78 respondents preferring Video-mediated method representing 24.4% whiles only 16 respondents preferred Asynchronous as well as Online method representing 5% each.

For learning how to perform basic arithmetic, out of 320 respondents, a good number of 258 respondents preferred Blended method, recording 80.6% followed by 62 respondents preferring Video-mediated method representing 19.4%.

For learning hairdressing and dress making, out of 320 respondents, a good number of 240 respondents preferred Blended method, recording 75.0% followed by 34 respondents preferring Video-mediated method representing 10.6% whiles 30 respondents preferred Asynchronous representing 9.6 and only 16 respondents preferring Synchronous method also representing 5.0% each.

Table 9: Summary statistics of Research Question 2

	Learning how to read	Learning how to write/type	Learning how to perform basic arithmetic	Learning hairdressing and dress making
N	320	320	320	320
Mean	2.40	2.78	2.58	2.56
Standard Deviation	0.971	1.356	1.188	1.037

Table 9 is a summary of all items relating identification of ICT delivery methods adult learners find more comfortable for acquiring information which are: Preferred ICT delivery methods for learning how to read, Preferred ICT delivery methods for learning how to write/type, Preferred ICT delivery methods for learning how to perform basic arithmetic, Preferred ICT delivery methods for learning hairdressing and dress

making. The mean value and standard deviation values obtained for each item respectively were, 2.40 and 0.71; 2.78 and 1.356; 2.58 and 1.188; 2.56 and 1.037 with the sample size of 320.

4.7 Research Question Three

How will learners accept the integration of immerging ICTs into adult education delivery?

Table 10: Learners Acceptance of integration of ICT tools

Extent to which respondents feel uncomfortable with the use of ICT tools for learning

Response	Frequency	Percent (%)
Strongly Disagree	144	45.0
Disagree	32	10.0
Neutral	30	9.4
Agree	114	35.6
Total	**320**	**100.0**

Extent to which respondents agree or disagree that anything that ICT can be used for can do just as well in some other way

Response	Frequency	Percent (%)
Strongly Disagree	96	30.0
Disagree	48	15.0
Neutral	46	14.4
Agree	98	30.6
Strongly Agree	32	10.0
Total	**320**	**100.0**

Extent to which respondents are unsure about how to integrate ICT tools into their learning

Response	Frequency	Percent (%)
Strongly Disagree	64	20.0
Disagree	64	20.0
Neutral	48	15.0
Agree	128	40.0
Strongly Agree	16	5.0
Total	**320**	**100.0**

Source: Field survey, 2019

Table 10 indicates the analysis of Learners Acceptance of integration of ICT tools. Specific to the extent to which respondents feel uncomfortable with the use of ICT tools for learning, out of the 320 respondents, learners who responded strongly disagree were 144 which represents 45.0% and 32 responded disagree which represents 35.6 and 10.0% respectively. However, 30 students were neutral in their response representing 9.4%.

Specific to the extent to which respondents agree or disagree that anything that ICT can be used for can do just as well in some other way, out of the 320 respondents, learners who responded strongly disagree were 96 which represents 30.0%. 98 learners responded agree and 48 responded disagree which represents 30.6% and 15.0% respectively. However, 46 students were neutral in their response representing 14% and 32 strongly agreed representing 10%.

Specific to the extent to which respondents are unsure about how to integrate ICT tools into their learning, out of the 320 respondents, learners who responded strongly disagree were 64 which represents 20.0%. Learners of 128 responded agree and 64 responded disagree which represents 40% and 20.0% respectively. However, 48 students were neutral in their response representing 15% but 16 strongly agreed representing 5.0%.

50

Table 11: Learners Acceptance of integration of ICT tools

Extent to which respondents agree or disagree that the use of ICT tools will result only in minor improvement in their learning over the traditional methods

Response	Frequency	Percent (%)
Strongly Disagree	112	35.0
Disagree	48	15.0
Neutral	64	20.0
Agree	96	30.0
Total	**320**	**100.0**

Extent to which respondents believe ICT integration enriches their teaching and learning environment.

Response	Frequency	Percent (%)
Neutral	32	10.0
Agree	112	35.0
Strongly Agree	176	55.0
Total	**320**	**100.0**

Extent to which respondents know that ICT tools give more opportunities to learn many new things

Response	Frequency	Percent (%)
Neutral	64	20.0
Agree	114	35.6
Strongly Agree	142	44.4
Total	**320**	**100.0**

Source: Field survey, 2019

Table 11 indicates the analysis of Learners Acceptance of integration of ICT tools. Specific to the extent to which respondents agree or disagree that the use of ICT tools will result only in minor improvement in their learning over the traditional methods, out of the 320 respondents, who strongly disagree were 112 which represents 35.0%. Learners of 96 responded agree and 48 responded disagree which represents 30.0% and 15.0% respectively. However, 64 students were neutral in their response representing 20%.

Specific to the extent to which respondents believe ICT integration enriches their teaching and learning environment, out of the 320 respondents, learners who strongly agreed were 176 which represents 55.0%. Learners of 112 responded agree and which represents 35.0%. However, 32 students were neutral in their response representing 10.0%. Specific to extent to which respondents know that ICT tools give more opportunities to learn many new things, out of the 320 respondents, 142 strongly agreed representing 44.4%. Learners of 114 responded agree and represents 35.6%. However, 64 students were neutral in their response representing 20.0%.

Table 12: Learners Acceptance of integration of ICT tools

Extent to which respondents agree or disagree that the use of ICT in learning enhances their prestige

Response	Frequency	Percent (%)
Disagree	34	10.6
Neutral	48	15.0
Agree	158	49.4
Strongly Agree	80	25.0
Total	**320**	**100.0**

Extent to which respondents believe ICT is a useful tool in their learning

Response	Frequency	Percent (%)
Neutral	34	10.6
Agree	128	40.0
Strongly Agree	158	49.4
Total	320	100.0

Extent to which respondents think it is important to have access to ICT tools in their classroom for use in their learning

Response	Frequency	Percent (%)
Disagree	16	5.0
Agree	146	45.6
Strongly Agree	158	49.4
Total	320	100.0

Extent to which respondents agree or disagree that working with ICT tools would be enjoyable and stimulating.

Response	Frequency	Percent (%)
Disagree	16	5.0
Neutral	16	5.0
Agree	130	40.6
Strongly Agree	158	49.4
Total	320	100.0

Source: Field survey, 2019

Table 12 indicates the analysis of Learners Acceptance of integration of ICT tools. Specific to the extent to which respondents agree or disagree that the use of ICT in learning enhances their prestige, out of the 320 respondents, learners who responded strongly disagree were 64 which represents 20.0%. Learners of 158 responded agree and 34 responded disagree which represents 49.4% and 10.6% respectively. However, 48 students were neutral in their response representing 15% but 80 strongly agreed representing 25.0%. Specific to the extent to which respondents believe ICT is a useful tool in their learning, out of the 320 respondents, learners of 128 responded agree which represents 40.0%. However, 34 students were neutral in their response representing 10.6% but 158 strongly agreed representing 49.4%.

Specific to the extent to which respondents think it is important to have access to ICT tools in their classroom for use in their learning, out of the 320 respondents, learners of 146 responded agree which represents 45.6%. However, 34 students disagreed in their response representing 5.0% but 158 strongly agreed representing 49.4%. Specific to the extent to which respondents agree or disagree that working with ICT tools would be enjoyable and stimulating, out of the 320 respondents, learners of 130 responded agree and 16 responded disagree which represents 40.6% and 5.0% respectively. However, 16 students were neutral in their response representing 5.0% but 158 strongly agreed representing 49.4%.

Table 13: Summary statistics of Learners Acceptance of integration of ICT tools

Learners Acceptance of integration of ICT tools	N	Mean	Std. Deviation
I feel uncomfortable with the use of ICT tools for learning	320	2.36	1.359
Anything that ICT can be used for can do just as well in some other way	320	2.76	1.415
I am unsure about how to integrate ICT tools into their learning	320	2.90	1.263
The use of ICT tools will result only in minor improvement in their learning over the traditional methods	320	2.45	1.246
I believe ICT integration enriches their teaching and learning environment.	320	2.45	0.670
I know that ICT tools give more opportunities to learn many new things	320	4.24	0.766
The use of ICT in learning enhances their prestige	320	3.89	0.903
I believe ICT is a useful tool in their learning	320	4.39	0.672
I think it is important to have access to ICT tools in their classroom for use in their learning	320	4.39	0.735
Working with ICT tools would be enjoyable and stimulating	320	4.34	0.792

Source: Field survey, 2019

Table 13 is a summary of all items relating Learners Acceptance of integration of ICT tools which are: I feel uncomfortable with the use of ICT tools for learning, anything that ICT can be used for can do just as well in some other way, I am unsure about how to integrate ICT tools into their learning, The use of ICT tools will result only in minor improvement in their learning over the traditional methods, I believe ICT integration enriches their teaching and learning environment, I know that ICT tools give more opportunities to learn many new things, The use of ICT in learning enhances their prestige, I believe ICT is a useful tool in their learning, I think it is important to have access to ICT tools in their classroom for use in their learning, working with ICT tools would be enjoyable and stimulating.

The mean value and standard deviation values obtained for each item respectively were, 2.36 and 1.359, 2.76 and 1.415, 2.90 and 1.263, 2.45 and 1.246, 4.45 and 0.670, 4.24 and 0.766, 3.89 and 0.903, 4.39 and 0.672, 4.39 and 0.735, 4.34 and 0.792 with the sample size of 320.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the research findings, the conclusions drawn from these findings and recommendations. Additionally, the chapter advances suggestions for further research of the Integration of emerging ICTs into Non-Formal adult education delivery: A case of Adult Education programme in the Accra Metropolitan Assembly.

The study was guided by three specific objectives which were to:

1. Identify specific ICT tools adult learners prefer to use as source of information and learning.

2. Discover ICT delivery methods adult learners fine comfortable for acquiring information.

3. Detect the level at which learners will accept the integration of emerging ICTs into Adult Education delivery.

In achieving these objectives, descriptive analyses were used. A total of 320 respondents were engaged for the study. The respondents were chosen via probability sampling techniques. Data collection was done using questionnaires.

5.2 Summary of the Findings

SPSS was used for the data analysis and the following were the findings:

1. The results for objective one indicated that respondents (learners) preferred Television as source of information and learning to any other ICT Tool. It was followed by computers and lastly with parallel preference of Microsoft office

suite, internet and Android and Smart Mobile phones. Specific to the success factors, the researcher found out that the high level of computer literacy among facilitators was key among the rest. However, constant power supply, availability of ICT infrastructure, skilled personnel and effective training for facilitators were parallel success factors.

2. From the findings of the analyzed data, conclusively the study depicted that, learners preferred blended method of lesson delivery to online, synchronous, asynchronous and video-mediated.

3. Key to the study was to find out the level of learners' acceptance of integrating emerging ICTs into Adult Education delivery. It was found that learners strongly adhered to the acceptance of the integration of ICT tools.

5.3 Conclusion

Therefore, the findings indicated that, television (TV) is identified as a specific ICT tool which learners use as source of information and learning. TVs can induce viewers to engage in literacy practice and change their attitudes about learning to read, write and perform basic arithmetic. The practice of reading has much to do with sounds and twisting of mouth by learners. Writing or typing and performing basic arithmetic involves sighting to learn application of hand and mental skills which is similar to Egbule and Njoku's (2001) research outcome where television was a preferred medium to communicate agricultural information to rural farmers.

Also, learners' attendance to classes is very poor and the unknown causes might be due to locations and distances of learners from the classes, instructional periods of lesson delivery and mix ability of the classes. With the use of TVs, learners would have extent of control over time, location and pace of learning that will increase enrollment

and decrease dropout rate. Moreover, Moeller (1996) advised that, television program should be designed to reflect learning activities such as listening to the programmes and taking note.

Furthermore, learners preferred blended method of lesson delivery to purely online which shows that, adult non-literate would want to ask questions which demand feedbacks. The use of TVs would be able to address such problems. Bryant et al (1983) recommended that, in request to please countless students, it might be generally proper to choose TV programs with middle pace and make extraordinary arrangements for more slow students to review materials. In the findings, learners overwhelmingly accepted the integration using the average of the mean of those who strongly agreed and agreed.

Nevertheless, it is imperative to concede that, adult trainees are already involved and engaged in using technology, hence, the level at which learners accept the integration of emerging ICTs into adult education delivery is very high. This will generate remarkable opportunities for participants to benefit from integrating some forms of technology in education so as to make training and learning more effective. It will not only improve learners' engagement in the learning process but also improve knowledge retention, encourage individual learning and collaborations.

The findings therefore indicated that, television is identified as a specific ICT tool which learners use as source of information and learning, preferred blended method of delivery to any other method and accept the integration of emerging ICTs into Non-Formal adult education delivery programmes.

5.4 Recommendations

It is recommended that the government formulates policies that will help provide the televisions to the rural poor especially, women at affordable prices. The cost of establishment and subscription to DSTV ought to be looked at to empower more occupants to approach the trending TV channels on the globe with most updated information.

Also, all centers running adult education programmes in the Metropolis should be equipped not only with DSTV but also various ICTs especially Internet connectivity for the learners to have easy access. A website should be accessible to deliver thorough information about the programme, uploading and downloading notes and other materials, submission of homework as well as other services. Learners who do not have ICT facilities at home or at their workplaces will be able to use the centers to assess the necessary information.
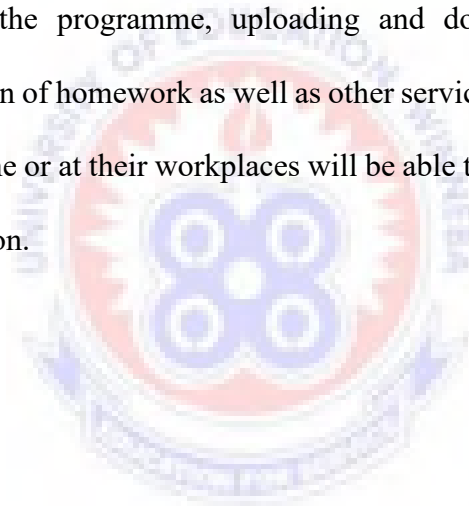
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APPENDIX A

QUESTIONNAIRE DESIGNED FOR LEARNERS OF NON-FORMAL ADULT EDUCATION PROGRAMMES ON THE INTEGRATION OF ICT INTO ADULT EDUCATION PROGRAMMES DELIVERY

Preambles:

I am a candidate of **MSc. Information Technology Education** student at the College of Technology, University of Education, Winneba, Kumasi Campus, conducting a research on the "**Integration of ICT into Non-Formal adult education programmes delivery".** Your answers to this questionnaire will be used together with other information to achieve the objectives of the study.

Please, this research is solely for academic purpose and nothing else. You are therefore encouraged to answer the questions as frank as possible. Your responses would be held in strict confidence. You are kindly requested to tick [✔] the appropriate answer below. Thank you.

SECTION A: Biographical Characteristics of Respondents.

1.   Sex (Please, tick one)

   i). Female   [ ]   ii). Male   [ ]

2.   What is your highest level of education?

   i). Primary School   [ ]   ii). MSLC [ ]

   iii). Secondary school [ ]   iv). Other, please specify: ………………

3.   What is your age range?

   i). below 15 years   [ ]   ii). 15 – 35 years   [ ]

   iii). 36 – 45 years   [ ]   iv). 46 – 60 years   [ ]

4.	For how long have you been a learner with the NFED?

i). 1 – 5 months [ ] ii). 6 – 10 months [ ]	iii). 10 + months [ ]

Section B: ICT tools to be integrated into adult education delivery

To what extent do you agree or disagree with the following ICT tools integration into adult education programme delivery? Please rate your responses using a scale of 1 to 5: Strongly disagree [1], disagree [2], neutral [3], agree [4], and strongly agree [5], Please tick [✔] the box which best reflect your view and state briefly where necessary.

S/N	Integration of ICT tools/success factors	Scale				
		1	2	3	4	5
1	Microsoft office suite					
2	Projector					
3	Radios					
4	Television					
5	Internet					
6	Speakers					
7	Computers					
8	Android and smart Mobile phones (PDAs)					
9	Digital and video cameras					
10	What Sapp					
11	Facebook					
12	Email					
13	Sakai or Google					
14	Availability of reliable ICT infrastructure.					
15	Constant power supply					
16	Availability of reliable, affordable and fast internet service					
17	Availability of skilled personnel to handle ICT tools and process					
18	Effective training for facilitators					

19	High level of computer literacy among facilitators					
20	Administrators' commitment and support to ICT integration.					
21	Existence of supportive ICT policies and legislation					
22	Government support for ICT integration					

Section C: ICT delivery methods adult learners fine more comfortable for acquiring information

5. **Synchronous learning** refers to an e-learning event in which a group of learners are engaging in learning at the same time in that the participants allow learners and facilitators to ask and answer questions immediately.

    Asynchronous learning refers to an e-learning event in which learners engage in learning at their own set time both online or offline without any interaction with other participants.

    Blended learning is an *educational delivery method* which combines both online educational opportunities and traditional-based *classroom* methods with learners having extent of control over time, place and pace.

    Online learning educational delivery method is that which participants interact over the internet only.

    Video-mediated allows for broadcast from a central point to many different locations regardless of distance.

Please rate your responses using a scale of 1 to 5: Online [1], Blended [2], Synchronous [3], Asynchronous [4], and Video-mediated [5], Please tick [✔] the box which best reflect your view and state briefly where necessary.

S/N	Which ICT delivery methods would you prefer for learning how to:	1 Online	2 Blended	3 Syn-chronous	4 Asyn-chronous	5 Video-mediated
1	Read?					
2	Write or typing?					
3	Perform basic arithmetic?					
4	Hairdressing and dress making?					

Section D: Learners acceptance of ICT integration into adult education programme

7. To what extent do you agree or disagree with the learners' acceptance of ICTs into adult education programme delivery? Please rate your responses using a scale of 1 to 5: Strongly disagree [1], disagree [2], neutral [3], agree [4], and strongly agree [5], Please tick [✔] the box which best reflect your view and state briefly

   where necessary.

S/N	Learners acceptance of integration of ICT tools	Scale				
		1	2	3	4	5
1	I feel uncomfortable with the use of ICT tools for learning					
2	Anything that ICT can be used for can do just as well in some other way.					

3	I am unsure how to integrate ICT tools into my learning.					
4	The use of ICT tools will result only in minor improvement in my learning over the traditional methods.					
5	I believe ICT integration enriches the teaching and learning environment.					
6	I know that ICT tools give more opportunities to learn many new things.					
7	The use of ICT in my learning enhances my prestige.					
8	I believe ICT is a useful tool in my learning.					
9	I think it is important to have access to ICT tools in my classroom for use in my learning.					
10	Working with ICT tools would be enjoyable and stimulating.					