UNIVERSITY OF CAPE COAST

CHILDREN'S BELIEF AND SELF-EFFICACY OF COMPUTER USAGE ALONG THE COASTAL BELT OF GHANA: A CASE STUDY OF LA DADEKOTOPON MUNICIPALITY IN THE GREATER ACCRA REGION.

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BY

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MARCH 2023

DECLARATION

Candidate's Declaration

I hereby declare that this dissertation is the result of my own original research and that no part of it has been presented for another degree in this University or elsewhere.

Candidate's Signature: …… Date:……...

Name: Emmanuel Ako Tsakley

Supervisor's Declaration

I hereby declare that the preparation and presentation of the dissertation were supervised in accordance with the guidelines on supervision of dissertation laid down by the University of Cape Coast.

Supervisor's Signature: …… Date: ……..……

Name: Dr. Paul Nyagorme

ABSTRACT

Information and Communication Technology is very important in all endeavours of human life in this modern society. Its benefits have been manifested in different areas including commerce on business model, market structure, workplace, labour market, education, health, private life and society as a whole. Based on the research objectives, interview and observation were the main instruments used for the study. Qualitative research approach was employed focusing on ethnological study. A sample size of 20 participants which consisted of 10 children and 10 parents were involved. From the interview and the observation, it was revealed that children had positive beliefs about learning ICT. They had the belief that ICT is very beneficial to their daily life activities as well as their future career. Children had much confidence in learning ICTs at home. The findings revealed that most children lack access to IT tools at home and the most common accessible ICT tools to the children were radio, television, tape recorder, and computer while complex ICT tools that demand software applications internet, combo games, video recorder, writing software were not common to them. Challenges children faced in accessing and using ICT tools were the high cost of ICTs tools, limited accessibility and network connection, negative perceptions, limited time, lack or inadequate knowledge and skills were the most challenging factors. It was recommended that community ICT resources centres should be established for cluster communities so that children can have access to other ICT tools to increase their access and boost their confidence level.

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DEDICATION

To my wife, children and friends.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE

INTRODUCTION

Background to the Study

Modernisations with its technological advancement have their foundation in Information and Communications Technology (ICT). The civil and service providing institutions, government agencies, organisations, religious bodies use ICT to facilitate their activities and programmes especially in their communication. The rate of growth in development of ICT and its effects on social and economic activities cannot be over-emphasised.

In fact, ICT has been infused into virtually every aspect of life. It is an undeniable fact that ICT has come to stay and has made tremendous and pervasive impact on every economy all over the world (Nomah, Buah &Akuffo, 2020). Day in day out, ICT is having the potential and a promising foundation of changing the lives of the world population's activities (UNCTAD, 2011). The manner in which ICT has been widely accepted is based on the grounds that the Information Society belief that the development of ICT has special opportunity to create awareness of the benefits it can have by transforming individual's activities and interactions. This can increase the confidence of using ICT and its future prospects. After the Tunis Summit, ICT is developing at a pace that is overwhelming (UNCTAD, 2011). It appears that there are no areas that have not been influenced by ICT.

At this present day, information sharing has been a necessity to every individual. According to United Nations Children's Fund (2013) ICT has the potential to contribute to the efforts of meeting the child-focused development goals. However, ICTs has been highly uneven, and it has clearly showed traces

and deepened the existing social divides between the poor –income people and high-income people, between the urban and rural settlers, between the men and the women and between the boys and girls. It has been stated that ICTs has marginalised the societal equity (United Nations Children's Fund, 2013).

In the world of education, the benefit of ICT cannot be overemphasised. Bindu (2016) opines that, ICT gives a great flexible education by ensuring that students are able to get access to knowledge, irrespective of space and time and at their own pace. Again, Bindu was with the opinion that ICT equips learners to share opinions, information and work together anywhere and at the convenience of their time. As more and more people join the world information society and high-speed communication, measurement of ICT development remains very important. For instance, the rapid diffusions of mobile phones, internet and computers in our daily lives have been a constant phenomenon globally in decades. Although, the use of ICT in the developing countries has been remarkable compared to the developed countries, there is still large digital gap between the advanced and developing world.

From a constructivist point of view, learning is a process of making sense of the surroundings and making knowledge through the experiences onehas, by relating one's experience to what one already knows, through the help of others (Iddrisu, 2016). It can even be perceived that using ICT in the homes has the potential of reducing the dependency of learners on their teachers. The learner can take an active role at his own learning pace. Children in diverse learning situations have different experiences such as in schools, peer group, home and within the community are very important, however, it should be noted that the success of their learning depends greatly on their self-efficacy

development (Khine, Fraser & Afari, 2020). In this modern world, Hammer, Scheiter and Sturner, (2021) posit that children's exposure to ICT and their learning of ICT in the home seemed to be more essential for the enhancement of ICT self-efficacy than their experiences in their learning environment without ICT.

Over the years, self-efficacy has been associated with teaching and learning and especially when abilities and skills of individuals come into play. From the perspective of Bundura (1977), self-efficacy is the beliefs of a person about his or her knowledge or skills to perform a specific behaviour successfully. He posits that self-efficacy is an individual factor that influences a person's selection in relation to tasks, persistence in doing the task and the performance of task. In this case, children's self-efficacy influences their achievements in learning situations at school and at home.

It has been observed that when children have confident in themselves when dealing with novel activities, they are able to solve the task or problem that come with the use of new phenomenon (Hatlevik, Throndsen, loi & Gudmundottir, 2018). This suggests that if children have confident in using ICT at home, they are more prepared to use ICT for learning in different environment and willing to increase their ICT skills during their whole life. From Siddiq and Scherer's (2019) point of view, within the home learning environment, gender, age and parental mediation styles are controversial in the children's self-efficacy to ICT access and usage.

Children self-efficacy on performing tasks are often overestimated but the accuracy of their self-efficacy are normally improved with development. According to Wigfield, Klauda and Cambria (2011) the perception of children

about their capabilities may decline with development as result of several factors such as less school transition, teacher attention to the individual, greater competition, more norm-referenced grading and home factors. From this perspective, Pomerantz, Cheung and Qin (2012) believed that children's belief about their capabilities usually occurs within families which are affected by family income, resources and assets. Families who provide supportive home, responsive environment and warmth, increase their ward's intellectual and development process.

Children mastery experiences occurs in homes enriched with activities and freedom to explore (Schuuk & Pajares, 2009). From these perspectives, Schuuk, and Pajares opined that, children's perceptions of competence and motivations to acquire skills and use ICT are affected by the family in the context of how the tools are made available and accessible to the children.

It is very significant to realise that sometimes, it takes a while for ICT to fundamentally become part of our lives. Research has established that some elderly and young people suffer in experiencing the usage of some daily technologies in their early years of life. For instance, for arrival of telephone, many people only experience it at work and therefore not totally comfortable with its usage at home. Haddon and Roger (2010) indicated that this makes it difficult and not relatively skillful and relaxed with phone manner.

Truly, mastery of ICT and its use in children's everyday activity must linger around the home environment for the acquisition of the new technological skills and knowledge. Though, not much information exist about the elderly and ICTs usage in the Western World on the telephone and TV, it is surprising that much awareness has not been established on children usage and access to ICT

in the African communities especially Ghana as a country (Kordey, 1993, Wald & Stucker, 1991, Williamson, 1994). Therefore, to explore the belief and self-efficacy of computer usage among children in the coastal area of Ghana is very much relevant.

Statement of the Problem

The current growth and knowledge in technology means children are not supposed to be limited within the classroom context for their learning. Children are expected to explore through their environment to create their own knowledge. A lot of efforts are made through ICT since learning has no limit as teaching and learning is always expanded from classroom to home and within the vast horizon of the environment. Literature shows that children's inadequate access to or the lack resources, including home access is a compounded challenge which affects teacher's integration of new technologies in their classroom (Simin, Kunjappan, Logeswary, & Annreetha, 2017).

In spite of government effort in ICT integration in schools, especially, in the introduction standard-based curriculum, many families especially those in rural areas and others living in slams do not have the technical know-how on the use of ICT tools in their daily life as many households do not have television and they also do not check their children's competencies and skills of using ICT.

From a current study conducted by Ghana Statistical Service (GSS) (2020) only 7.9% of the persons aged five years and older have access to a computer at home, 5.1% having laptops and 1.2 % with desktops. While 70.1% owned radio in the house, 68.9% for television and 16.8 % having access to internet in the house.

From the above it is evident that some works has been done in relation to ICT distribution in Ghana. It is however imperative to note that, much works has not been done under the challenges the coastal belt of Ghanaian communities face in accessing ICT of which La Dadekotopon Municipality forms part. This research seeks to fill the gap by exploring the belief and self-efficacy of computer usage among children in the La Dadekotopon Municipality.

Purpose of the Study

The purpose of the study is to explore the belief and self-efficacy of children in computer usage.

Research Objectives

These research objectives have been formulated to guide the study.

1. To determine availability of ICT tools at homes.
2. To explore children's access to the usage of ICT tools at home.
3. Find out children's self-efficacy of using ICT at home.
4. To find out what children's belief about ICT tools.
5. To find out how Socio-demographic background of parents' impact children's use of ICT at home.
6. To explore geolocation challenges children face while using ICT at La Dadekotopon Municipality.

Research Questions

These research questions have been formulated to guide the study:

1. What ICT tools are available at home?
2. What ICT tools do children have access to use at home?
3. What are children's self-efficacy of using ICT at home?

4. What are children's belief about ICT tools?
5. What Socio-demographic background of parents' impact on the children's use of ICT at home?
6. What geolocation challenges do children face while using ICT at La Dadekotopon Municipality?

Significance of the Study

The importance of every study lies on its findings. It is of great hope that the study findings would be beneficial to all the ICT users. The findings would inform the government and all stakeholders especially parents to make concrete decision about their children usage of ICT. The findings would also inform other interested groups such as Non-Governmental Organizations (NGOs) to support vulnerable children in the society to build their interest in ICT. The findings would be beneficial to parents on the importance of using ICT at home. Other stakeholders such school educators may also know the connection of ICT tools in the home and at school. The findings would also be a reference material for future researchers who have interest in the similar study area.

Delimitation of the Study

The scope of the study covers only children living along the coast, those in La Dadekotopon Municipality as the setting of the study. Concerning the content of the study, it covers children's belief and self-efficacy of using ICT, children access to ICT facilities and challenges they face in using ICT at home. In terms of research design, ethnographical research design with qualitative data collection was selected for the study.

Limitation of the Study

In conducting this study, the researcher encountered some challenges. For instance, it was not possible to reach the entire persons in the target population, therefore it became essential to narrow the population to accessible population so that the sample could be made.

Again, getting the children for the interview was a challenge which affected the population size. Again, some of the children felt reluctant to provide accurate information for the fear of being victimised. The researcher also relied on both primary and secondary data; however, it was difficult in getting the secondary data such as reports, books and journals for reviewing literature. However, with the above limitations, the researcher put in appropriate efforts to achieve the desire results.

Organisation of the Rest of the Study

The study is structured into five chapters. Chapter one looked at background to the study, statement of the problem, purpose of the study, research objectives, research questions, significance of the study, the scope of the study and organization of the study.

Chapter Two covers concepts, theoretical framework and empirical review relevant to the study. The conceptual framework focuses on the concept of ICT, types of ICT, importance of ICT, challenges of using ICT in homes and other related concepts. The theoretical framework of the study focuses on the theories of behaviouristic, cognitive and constructivist approaches to learning. The session will also discuss their implication for use of ICT. The last section of the chapter two covers the empirical review. This section discusses the

previous researches that have been conducted which give the researcher a foundation and insight for analysis.

Chapter Three deals with the research methodology. The methodology consists of research design, population, setting, sample size and sampling techniques, methods of collecting data, and the data analysis procedures.

Chapter Four covers the presentation of results, interpretation and discussion. The discussion would be done in line with the themes of the research objectives in relation with the existing body of knowledge in the reviewed literature.

Chapter Five is the last chapter which focuses on the conclusions of the study, the summary and the recommendations made based on the findings.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter discusses the relevant areas such as conceptual understanding of the relevant themes, theoretical review as well as the empirical review that related to the topic under study. Within the context of this study, the review was organized around the following themes; concept of ICT, importance of ICT, historical overview of ICT development in Ghana, Ghana's ICT policy framework, potential of ICT in children's learning, availability and access of ICT tools to children, effects and challenges of ICT usage in the homes. Other themes discussed under this section include self-efficacy and ICT self-efficacy, home learning environment, digital home learning environment and gender difference in the ICT usage. The chapter also covers the theories that underpin the study.

Concept of Information and Communication Technology (ICT)

Information and Communication Technology (ICT) is accepted universally as similar concept to Information Technology (IT) that consist not only a distinct unit of technology but a collection of technologies such as telecommunications facilities, data processing facilities, semi-conductors, consumer electronics and many others. (Zainab & Muhammad, 2019). Currently, there have been a lot of transformation in the information gathering, storage, preservation, and processing in the world which has produced different kinds of technologies.

As a result of diverse applications of the term ICT in several contexts and treatments, therefore making it a challenge in defining ICT. The Acronym ICT or ICTs is Information and Communication Technology or Information and Communication Technologies. Through literature, authors and researchers are in difficulties in finding consensus concerning the definition of ICT. UNESCO (2002) in their attempt to define ICT rather explained it with its relevant to individual and society; they indicated that ICTs are the technologies that become the fundamental building blocks of the society that influence individual life. The United Nation Children Fund (2013) also added that ICT includes mobile phones, computers and internet that are often used to accelerate the development processes. According to Zuppo (2012), ICT is technology that provides assistance to activities involving information, which include presentation, data gathering, processing and storage. Bindu (2016) also accepted that the term ICT is a varied and detailed expression that is not only restricted to the use of computer or the internet but it spans from the use of FM radio, to its related satellite communication.

The phrase 'Information Society' was coined in Japan by Kohyama in 1968 and used as a rationale for national policy (Masuda, 1981).In the 1970s Daniel Bell framework for the information society spearheaded the movement of legitimization of the information society concept (Bell, 1979). The term has gone through a lot of morphological processes. According to Luic and Glumac (2009) in recounting the history of Information and Communication Technology indicated that, it was in 1970s, that authors were unlikely to refer 'information Society' but instead used alternatives such as 'Information age' and 'computerized Society'. However, in early 1980s information society has

been accepted in all cultures of life and it was dominated by Information Technology (IT).

The scope of ICT is not static and continuously changing with the innovations and inventions of new technologies. The daily inventions of novel technologies provide a herculean challenge to accept universal and common definition for ICT. But is imperative to track the development of ICTs because the hierarchy of the inventions of the technologies we produce is intended to answer the need for us to understand how ICTs could be utilized rather than its theoretical understanding.

From the review so far, it is better to conceptualized ICT in this modern era in the context of local culture, the particular ICT and how it is configured and managed for human benefits. In this wise, ICTs can be configured as a collection of tools, devices or an organized set of equipment used for particular tasks or for working on information and communication.

Importance of Information and Communication Technology

Information Technology plays a very essential role in all endeavors of human life in this modern society. Everyone testifies that ICT has evolved the manner in which people communicate, find needed information, conduct business, interact with offices, work and the manner we managed our social lives. Truly, Information and Communication Technology have effect on individuals' everyday lives. According to Roztocki and Weistroffer (2016) the development of ICT has great impact on the socio-economic growth to the extent that, it enabling infrastructures and improving standard of living. In the context of socio-economic growth, Stec, Filip, Grzebyk and Pierscieniak (2014) believe that variables related to social factors upon which ICT influence them

include education, culture, profession and many others while on the aspect of economic factors involve income and resources.

Children are growing in a digital world with a varied range of knowledge, understanding and skills. For this reason, Alfonso and Camaro (2017) were with the view that children should live in a media-saturated world of huge technological awareness that differ from other generations. The advancement of ICT presents many important opportunities with wide range usage across numerous domains in the society. Therefore, the importance of ICT according to Lee (2013) could be best discussed in terms of commerce on private life, market structure, business model, labour market, workplace, education, health and society as a whole.

Commerce, Business and Market Structure

One significant way through which Information and Communication Technology plays a huge role is in the commerce and business sector. Extremely, technology impacts the business world in terms of management, producing, selling of communication product (Deep, 2020). As a result of extreme competition, many business organizations are looking for new and more powerful tools and Information and Communication Technology has proved to be outstanding to achieve a successful business (Navarro, 2010). In this modern world, ICT makes business a lot more economical, effective and for customer care effectiveness. ICT enhances business activities together with productivity, distribution, styles, research and development, and sales and feedback. From the perspective of Laudon and Laudon (2010), Information and Communication Technology support business in the areas of manipulation, creation, communication and storage of information together with related

activities such as application and ways of management. In the field of business, ICT is the fundamental ingredient for globalization.

Again, the contribution of Information and Communication Technology has also been noted by Nuamah-Gyambrah, Offei and Agyeiwaa, (2016) that it provides the grounds for the small and medium-scale business to create and use new knowledge and information to design and deliver new products and services with unique processes to meet current changes. Therefore, Deep (2020) indicated that the arrival of telecommunication and its associated benefits such as social networks, electronic faxes, faster emails, and many others including improvement of time to deliver services and offer a serviceable support has been enhanced to achieve customers' satisfaction, leading to business growth and development.

Employment and Workplace

One of the key factors that has been accepted by the International Labour Organisation (ILO) to have impact on the quality, quantity and distribution of jobs is Information and Communication Technology (Rubery & Grimshaw, 2001). According to the European Union (EU, 2016) the digitalization of the economy is essential driver behind the transformation of the labour market and the way people work. Although, digitalization has been accepted with debate in the creation of employment and at workplaces, it is however important to note that, the new paradigm represents the most appropriate options to transform workplace opportunities for all.

The contribution of digitization on the employment and workplaces are multiple, with a high level of interconnectedness. According to the Rubery and Grimshaw (2001) within the digital economy of labour and work, the most

influential impact is on polarization of the labour market in most countries. However, digitalization is seen to have more impact with the high demand for skilled people, equipped with cognitive skills and technical knowledge to handle tasks and process that need new technologies.

The importance of ICT to employment and workplaces have been highlighted by the European Commission (EU, 2016) as not only increasing the over time, analytical tasks in the manufacturing industries but also increase the analytical tasks in the decision-making through the use of computers and calculators. It also assists professions like doctors and police detectives in making complex analytical thinking. It also increases the speed, flexibility and decency of work. For examples the use of animators increases the speed of repetitive tasks.

Although, there has been controversies and reasonable argument over the past two centuries on the relationship of new technologies, labour and employment from macro-economic perspectives, however, Soete (2001) in his review of ICT, knowledge, employment and work: challenges to Europe concluded in his debate that, the introduction of ICTs in the labour market have led to more efficient processes in production by reducing costs and making huge gains and saving on capital, materials, labour, energy and many other factors of production that could lead to the development of products. In this case through ICT, more welfare is created.

Education

Education is essential for solving problems that occur in our daily lives and for the promotion of sustainable development. According to UNESCO (2020) quality education is a fundamental human right that is a panacea for

eradicating poverty, guaranteeing inclusive education and creating learning opportunities for livelihood. Learning according to constructivist view is making meaning of the things around you and constructing knowledge through the experiences you have (Bindu, 2016). This development can grow through technological education. Information and Communication Technology contributes to numerous learning opportunities for instance, Carrion-Martinez, Antonio, Fernandez-Cerro and Montergro-Rueda (2019) indicated that computer simulators and prototypes can be used to perform impossible experiment on the subjects in the labs, it is also essential for distance learning and e-learning programmes, it promotes better content lesson delivery and strengthens individualized learning.

In this perspective, no wonder in 2015, Kofi Annan, the former General Secretary of the United Nations stated that ICT is a pivotal tool for spreading quality education and it is a tool for achieving universal primary education since it takes learning beyond the four walls of the classroom (Bindu, 2016). This implies that Information and Communication Technologies in the education system, provides learners a great flexibility to ensure that learners get access to knowledge anytime and at any place. The importance of ICT in education reminds us to reecho the DfES 2003 objectives (Iddrisu, 2016) for efficient use of ICT in education as:

1. Broadening the horizons with more opportunities for creative expression
2. Flexibilities to study where, when and how best suits individual needs and preferences
3. Increased motivation through stimulation learning
4. Stretches wider access to learning and participation

5. Sensible choices about when, when not and how to use new technologies to enhance learning.

Health

Information and Communication Technologies are universal tools accepted in all works of life. The digital technologies also have their roles to play in the management of health system. According to Rouleau, Gagnon and Jose-Cote (2015) ICT in health sector is referred to as a set of projects or services that allow for remote care, interdisciplinary clinical support as well as knowledge transfer. The impact of ICT technologies on health has been so enormous that e-health, tele-medicine and others are now considered and understood by World Health organisation as factor that promote health.

Several studies found a significant correlation between health products and ICT (Ditta & Gupta, 2019). The review shows that ICT facilitates the improvement of bidirectional patient-health care system, easing the access to most health care information, communication and also increasing collaboration internationally. The contribution of ICT not only covering achieving conventional public health service but it also encourages personal wellness, disease prevention and better-informed health care decision for individual.

Information and Communication Technologies which is normally referred to as Health Information Technology (HIT) deal with human, machine integration and interaction designed to assist knowledge to support the delivery of better health care, information and the management and processing of health-care data (Ochuoga, 2014). According to Ochuoga (2014) health information technology utilisation is manifested in the operationalisation of the activities including laboratory, radiology, electronic records, mobile health treatment,

personal health records, patient care planning, communication and decision-making.

Society as a whole

The development of Information and Communication Technologies has great potential to transform economies and the societies in many ways. The major variables of society include education, health, human capital, business and social capital (UNESCO, 2020). Within the society, ICT has proved to reduce information and transaction costs, creating new collaborative model that will increase the efficiency of workers and promote innovations.

There is clear evidence of ICT effect in the use of goods and its corresponding services in general (Haddon, Leslie & Silverstone, 2010). The significance of ICT in the society is felt in food production, clothing, furniture, domestic architecture for identity, lifestyle and taste. The modern insight in the goods and services have been applied to technological advancement. Nowadays, the new technologies of complex structures and patterns have been accommodated into our everyday life inside the home and outside the home environment.

As humans we are normally associated with a lot of important things in our everyday life. Many activities that are time consuming and tough have now become easier due to the use of ICT gadgets as choice in lifestyle. For instance, social contact has been increased. Communication has been improved in homes, offices and on street through social networks, emails, etc. in terms of quality of human life, it has affected various fields of daily life. For example, people can connect and control domestic equipment such as refrigerator, cell-phones, washing machine, laptops, etc. online shopping available, reading news online

watching TV programmes, connecting ourselves to families and friends to break the distance barrier. Considering the social networking, sites are available for individual users to communicate across the globe.

These days, with the help of ICT, banking services have become very easy and interesting. People sit at their comfort zone in the home and make cash out through bank service to mobile money transactions. It has increased a number of employments in our society. Information and Communication Technologies give new job offer for individuals to become successful self-employers to work from homes. From this indication, Bindu, (2016) believes that ICT have great impact on almost everybody that get access to them and it brings people from all parts of the world together to communicate with each other across the world. Indeed, ICT has really made people life simple, entertaining and informative.

Historical overview of ICT development in Ghana

The development of ICT in Ghana could be traced back as to the late 19th century in the form of telecommunication when the British colonial administration decided to enhance the communication in their territories (Allotey & Akorli, 1999). According to Allotey and Akorli (1999) the first telegraph line was established in 1881 between the castle of Cape Coast and Elimina. By the 1886 the telegraph lines have been extended to the northern territories of the Ashanti. Around 1920, the backbone of the main trunk telephone routes of Accra to Takoradi, Accra to Kumasi, Kumasi to Takoradi and Kumasi to Tamale have been built using unshielded technology. According to Iddrisu (2016) the first automatic phone communication was installed in the reginal capital - Accra to replace the manual one erected 63 years back.

Therefore, in 1956, all the truck lines in the country were upgrade through the installation of a 48 and 12 channel High Frequency (VHF) network. In 1963, Allotey and Akorli (1999) posit that as many as 16, 000 telephone subscribers and 32,000 rotaries –type telephone was in use in Ghana by the year 1963. Since then, a lot of development have been in the service telecommunication upon which its milestone is difficult to trace.

Ghana ICT Policy Framework

All over the world, countries are making effort to integrate ICT in their national polices to support economic growth. In Ghana, the ICT policy for all sectors of the economy including teaching and learning is termed as ICT for Accelerated Development (ICT4AD). The nation recognized the developmental opportunities and the challenges of the emerging information age associated with ICT and adopted the policy to provide the requisite skills to transform the livelihood and the economy of Ghana. According to Boateng (2012), for the adoption of the global policy changes in the ICT industry, Ghana was among the first African nations to reform its ICT Sector. Through the adoption, necessary legal and regulatory framework was put in place to support the growth of the economy.

In the policy, it has indicated the need to ascertain technologies necessary to drive the national development agenda as could be explore worldwide. According to Iddrisu (2016), the aim for the policy had been to ensure that ICT are effectively exploited, developed and deployed in all developmental processes. The main aim of ICT4AD was to champion an ICT led social and economic development process with the potential of transforming Ghana as a middle-income information-rich, knowledge and technology-driven

economy and society. To achieve that Ghana Government over the years has partner with several private sector institutions and organization to increase the smooth progress of the ICT policy which seeks to address the key developmental challenges by supporting all other sector of the economy in the information knowledge.

Despite, the enormous importance of ICT to the needs of the society and the economic progress, accessibility is very limited due to lack of well-developed ITC infrastructure. According to Boateng (2012), in spite of the introduction of ICT4AD implemented in 2005 there are still underserved in terms of ICT capacity building. The national policy has also integrated into the education system. From early 1990s, the stakeholders of education in Ghana have strived to be concerned about how teachers and learners can use computers in schools to support learning (Iddrisu, 2016). Therefore, in early 21st century, Ghana government embarked on a number of supportive projects to introduce ICT into training and education system in both basic and secondary schools' levels. In spite of the national ICT4AD policy, the Ministry of Education and the Ghana Education Service (GES) made several proposals that ICT must be an integral part in all educational levels, students must have ICT minimum standard skills before coming out of each level of education provide means of standardizing ICT resources in all school and promoting ICT as a learning tool in the school curriculum. Upon the Ministry of Education and GES proposal, the 2007 educational reform made ICT an important crosscutting issues in the education sector (MoE as cited in Iddrusu, 2016). Integration of ICT policy in education system both formal and non-formal is to equip children with the necessary confident and creative skill of ICT tools and resources to develop the

requisite technical skills and information needed to be active participants in the local and global knowledge economy dominated by the ICT.

Potentials of ICT in children's learning

ICT for learning is considered as the use of information technologies in different processes of learning situations to support and improve learning. According to Khaled (2014), the use of ICTs provides children flexible opportunities to explore information at different place at any time. ICT in children learning spreading widely all over the places, as the access to different ICTs is improving. As it has been often said, technology has become very essential commodity in the society especially in the homes due to its communication usage. Among other ICTs, Khaled (2014) opined that computers, software games, peripherals and internet connections add value to learning process and enhance educational environment by increasing children's motivation and participation during learning.

Information and Communication Technology is important resources that could be organized to be accessible in an educational environment for children. Iddrisu (2016) indicated that when ICT is considered as affordances for children learning it increases children perception and beliefs. Affordances is considered as any tool that provide support to the learner to enhance the learner's perceptions. It is important to state that Armstrong, Barnes, Sutherland, Curran, Mills and Tompson (2005) posit that ICT affordances selection should be guided so that suitable ICT for exploring and developing the skills, technical know-how and ideas that are thoughtful are selected.

Availability and Access of ICT in the Society

The key factor in the use of ICT among children is the availability and access of the ICT facilities in the home and at school. There are different ICT tools used in the home including television, radio, camera, video/VCD and DVD machines, computer, CD-Rom, digital multimedia, internet and so on. The availability of these ICT tools are very essential and useful in promoting the children's learning at home (Scheuermann & Pedro, 2009). According to Prasad (2018) due to home budget constraints, most houses are not well equipped with ICT tools at school and even at homes which affect students learning. Although, much studies are not found on availability of ICT at home, but similar studies show clearly that the most influential barrier to ICT access is the availability of ICT in schools (Nikolopoulou & Gialamas, 2015). Gadzama (2019) also added that non availability of ICT software and hardware also is a major challenge to its utilization.

It clear that availability of the ICT tools increases its accessibility to use them. Prasad (2018) noticed that children with high skills in computer usage are highly found in where ICT tools are available. According to OECD/IDB, (2016) provision of computer and internet at home and school bridge the gap between learner access to ICT at home and at school. On this issue, Programme for International Students Assessment (PISA) conducted at the Latin American Economic Outlook on the ICT availability index at home and school shows that home ICT tools is higher than those at school (OECD, 2020). However, this is not the case of Africa, especially in Ghana. For instance, on the African context, the United Nations Children's Fund (2013) point out that availability of ICT facilities to young people in the developing countries are not common, therefore

youngest people are excluded from the growing information revolution due to inadequate ICT tools. The National Communication Authority (NCA) in 2020 conducted availability and access of digital tools in the home and reported most household are lacking the basic ICT tools in their homes. The statement seems true since in 2013, According to Karakara and Osabuohien, (2019), the Ghana Statistical Service (GSS) also confirmed that only 7.9% of the population 12 years and older in Ghana used the computer with 2.7% getting access to internet.

The Concept of Belief and Self-Efficacy

Beliefs is a very important concept in how individual approach developmental issues especially when it affects lives. Pajares (1992) presents beliefs as a messy construct and one difficult to disentangle from similar concepts. A critical study of beliefs under Galvis (2012), shows that beliefs normally overlap with psychological terms like attitude, knowledge, ideology and opinion. The concept of belief was introduced by Rokeach (1968) through a four elements model: existential vs non-existential beliefs, shared vs. unshared beliefs, derived vs underived beliefs, and concerning matter belief. In a simplified context, beliefs are mentally held understanding, premises or propositions about the world that are held to be true (Galvis, 2012). It is theoretically understood from the review that it is considered to be centrally the construct of every discipline which deals with human behaviour and learning.

Understanding the belief of children is important because it helps parents, guardian and teachers understand the learners learning better. In proposition, Bandura (1997) sees beliefs as best indicators of the decisions people make throughout their lives and also how they perceive a change. Stipek, Givvin, Salmon, Kazemi,Saxe and Mac-Gyvers (2001) define beliefs as a

construct based on personal judgement and evaluation, which are non-evidential. It should be recognised that children's beliefs play a fundamental role in mediating learning in the home and in the classroom. In this sense, it could be inferred that personal beliefs play a basic role in providing a change in one's life. According to Nespor (1987), children's beliefs about knowledge construction are based on their experiences first as a child and later they transmit their beliefs into their own teaching pattern at adult stage which eventually become self-efficacy beliefs towards learning. The personal beliefs are powerful factors, influencing children learning approaches about new things. According to Mansour (2011) there is a clear indication that children's knowledge about ICT usage is influence by their beliefs which later become integral part of their daily practices.

In socio-cognitive perspective, Pajares, (2003) posits that human is seen as proactive and self-regulating rather than as reactive and controlled by biological or environmental forces. In this view, humans are understood to posse self- beliefs that make them to exercise a measure of control over their thoughts, feelings and actions. In all these assumptions, Bandura believes that how individual's behaviours and motivation determines their beliefs which are critical for their capabilities (Pajares, 2003). Individual's behaviour can normally have predicted by the beliefs they hold about their capabilities which is called self-efficacy beliefs. Self-efficacy is defined as a one's belief about his or her abilities to perform a specific behaviour successfully (Bonanati & Buhl, 2021). Bandura introduced self-efficacy as human factor that influences his or her selection of activities, persistence in conducting any activity and task performance. Hence, self-efficacy influences children's learning of ICT in

homes. The focus of self-efficacy beliefs is so important that the belief the child holds create, develop and hold to be true about themselves as forces to their success or failure in life (Bonanati & Buhl, 2021). A strong sense of confidence may provide the child a greater motivation and a positive emotional reaction to perform a task. On this reason, Pajares, (2003) perceived that self-efficacy is considered as a mediating mechanism of personal agency- mediating between the prior influences that are the sources of its creation and the subsequent behaviour.

Self-efficacy and ICT self-efficacy

Self-efficacy in the context of ICT is more related to operations of information and communication technological tools the designed for retrieving and processing appropriate information. From the perspective of Aesaert and Van Braak (2014), ICT self-efficacy is defined as computer and information literacy. Fraillon, Ainley, Schulz, Duckworth, and Friedmanet (2019) refer ICT self-efficacy to be the ability of an individual to use technological tools to create, investigate and communicate in order to participate effectively in the workplace, at home, at school, and in the society.

From the views of Fraillon, Ainley, Schulz, Duckworth, and Friedmanet (2019) definition, it is important to distinguish between the broad strands found; the first strand is collection and managing information, which involves understanding and knowing about technological tools, accessing and evaluating and managing information. The second strand is producing and exchanging information which also composes of four sub-strands including transforming information, creating, sharing and using information accurately and securely. Under these assumptions, ICT self-efficacy is based on the fact that a child has

the belief about his/her ability to successfully get access, create access, manage and evaluate information in the context of ICT.

Regarding to the on-going integration of ICT in schools, children need to have great understanding of the relevant and essential factors that contribute to favourable ICT self-efficacy which is crucial and enhances children learning environment. This provides fundamental knowledge for parents to support children's learning at home using ICT tools.

Digital home learning environment (DHLE)

Children normally learn in different learning environment. The learning places including peers, school, home, all are important sources that influence the development of children self-efficacy (Khine et al, 2020). The home serves as a fundamental platform for children to experience ICT for recreational purposes. According to Hatlevik, Throndsen, Loi and Gudmundsdottir (2018) when parents involved their children in a rich ICT related activity, it provides encouragement and positive expectation for them and make them possess good self-efficacy beliefs for school learning. In the international front, especially, Germany, ICTs use at homes is more frequent than ICT use in other areas such as school (Aesaert & Van Braak, 2014; Bundsgaard & Gerick, 2017). According to Aesaert and VanBraak, (2014) there are more home learning environment predictive factors that determines ICT self-efficacy. These home learning environment factors according to Bradley et al (2019) can be broadly grouped into five namely:

1. Stimulation which includes children's opportunities for exploration and learning

2. Instructions, which relate to direct parental help. Support and guidance –for example helping children in doing homework
3. Interactions which also include children's engagement in learning-simulation activities like interactive of parent-child activities
4. Motivation that involves the reflection of the ways in which parents comment on their children performance
5. Modelling which also concern with parents own behaviour, their attitudes and expectations regarding to the development of their child,

Stimulation and modelling are categories as passive variables of home learning environment and instruction, interaction and motivation are considered an active factors of home learning environment. Even though there are several literatures that prove the existence of digital home learning environment for ICT, it is however, difficult to provide the different dimensions. From the review so far, ICT digital home learning environment is a home situation(Bradley et al, 2019; Aesaert & Van Braak, 2014; Bundsgaard & Gerick, 2017).It is therefore, to recognise that stimulation, instruction, interaction and modelling are the pivotal factors for developing children ICT self-efficacy as stimulation is normally operationalised in ICT as access.

In this modern era, almost every house is equipped with one or more ICT tools, however, there are still difference between children access and adult access with ICT in the homes, for instance, for child to have an individual computer in his or her room comes with parental regulations. Instructions are concerned with parental instruction during children's ICT use. The operational instructions consist of parental support involving strategies and activities that assist children during ICT use. Parental support is crucial to the child's need

during ICT use. It is often said that parental support which is quality normally fosters children's desire for competence and autonomy, which result in motivational beliefs of the child including self-efficacy.

In building children self-efficacy, interaction is considered to be the sharing of ICT activities with the next sitting child using ICT (Bonanati & Buhl, 2021). This aspect concerns with parent and child talking about ICT, using ICT together to plan family activities. The modelling is with regard to the parental values on ICT use. This concerns the parental positive attitudes. For instance, most parents have the idea that the use of ICT may be harmful, which is taken as a more critical attitude (Kumpulainen & Gillen, 2020). Since it has been established that parents' positive attitudes toward ICT is essentially connected to children ICT self-efficacy (Aesaert& Van Braak, 2014). It should be important to note that availability of parent support and parent attitude are having close associate between technological home learning environment and children ICT self-efficacy.

Throughout the review, family is considered as the first source of efficacy information for children. During the early life of the child, parents mediate the child's interaction with the environment. The inference made so far indicate that parents who are more responsive to their child communication create the opportunity for efficacious actions and offer a variety of mastery experience so that the child become social and cognitive competence.

Information and Communication Technology play a very essential role in all aspect of human life irrespective of gender difference. For instance, information and communication technologies have moulded the way people interact with each other, how information is found, work and even in all business

aspect. Information technologies have affected everyday lives. But with regard to gender difference in ICT use, self-efficacy and competencies, Hatlevik et. al (2018) indicated that it is very controversial. Although there are several body of research to show that gender difference in ICT use and self-efficacy exist with boys having high self-efficacy than the girls do (Tsai & Tsai, 2010; Vekiri & Chronaki, 2008). It is also essential to argue that ICT self-efficacy also depends on the specific ICT activity.

In Ghana, a recent study by Ghana Statistical Service and National Communication Authority (2020) shows that on the average, males are on higher ownership of mobile phones nationwide with 56.0% as compare with the female ownership of 52.4%. on the account children between the age of 5-19 years not having phones, the most dominant reasons to that were parental control (42.9%), followed by the 'no need to use a mobile phone (29.1%).In the international perspective, Tsai and Tsai (2010) reported that relatively, girls have higher self-efficacy in communicative activities than for explorative internet activities. Lorenz et al (2014) also found out that boys have higher self-efficacy on advance ICT literacy than the girls but found no difference in basal ICT literacy. Through review, little has been known on gender difference in parental support. For the few studies identified, Livingstome and Helsper (2008) assert that parental mediation exists for boys than the girls as parent expect that girls are at higher risk of internet than the boys. With regard to ICT, use for recreational girls have higher self -efficacy than the boys.

Challenges of using ICT in homes

Children are growing up in a world surrounded by digital and technologies in which they develop varied skills, knowledge and understanding.

Technological experiences differ considerably from developing countries to developed countries, country to country and society to society. According to UNICEF ITU (2020) most children are falling behind their peers and left with little opportunity due to some simple and complicated difficulties confronting them in the homes. These difficulties are known as challenges. Ghavifekr, Thanusha, Logeswary and Annreerha (2018) see challenge as a situation that provide stumbling blocks to make much progress or to achieve an objective. The following are some of the key challenges that have been identifies regarding children's use of ICT tools in homes.

i. Limited accessibility and network connection

Many studies show that inadequate access to resource in the home is another complex challenge that limits children from using technological tools in the homes. For instances, in 2005, Sicilia's study revealed that teachers complained about how challenged children have access to computers to use. Elsewhere in Europe, Empirica (2006) also complained that the biggest challenge for children to use ICT tools is accessibility. Korte and Husing (2007) indicated that young children are denied from getting access to broadband internet, computer and Television.

ii. Limited technical support in the home

Some technological tools are knowledge based driven, which require technological knowledge to operate. Therefore, its effective use could need some sort of technical support from expert. According to Ghavifekr, Thanusha, Logeswary and Annreetha (2018) without good technical support in the house parents prevent children from using such ICT tools, in that view, technical assistance is another biggest challenge. According to Soma, Nantomah and

Adusei (2021) the technical barriers including failing to connect to the internet, malfunctioning of computer, websites not opening, connecting ICT devices to power and fixing software and hardware problems. Ghavifekr and Sani (2015) indicated that if there is no technical support available in the house, it is likely that technical maintenance will not be carried out regularly, which will result to technical breakdown.

In fact, despite some houses accessing ICT tools such as computers, most parents do not have the knowledge on how to use them or even assist the child.

iii. Lack of training on the part of the parents and household people

It has also become challenge for parent to support children in using ICT due to high level of computer illiteracy rate in most parents of the developing countries, especially in Ghana (Soma, Nantomah & Adusei, 2021).It is not surprising that Natia and Alhassan in 2015 found out that even many teachers in Ghana have never used a computer or projector before how much more the parents at home. This implies that some parents could have wished but lack of knowledge to operate prevent them from letting their children getting access to them. Albirini (2006) refer this scenario to lack of training to have opportunity to use ICT in the house.

iv. Negative perceptions

In spite of several studies trying to project the importance of ICT tools on children development, especially on their educational achievement, some people or parents are unaware that there is actually a need for that. Soma, Nantomah and Adusei, (2021) revealed that some parents are with the view that availability of technologies have reduced problem-solving skills of children as

they rely on online source of information, using calculators in solving simple mathematical problems. These make them copy blindly, and become intellectually lazy. From Iskrenovic-Momcilovic (2018) point of view, technology as it is having its own challenges in spite of its goodness. He therefore, opined that teachers and students indeed are now becoming less thoughtful and eventually losing their critical thinking skills. For example, the use of smart phone, computers, calculators to get answers to most complex mathematical problem, we do not worry our brain to think. Other parents also perceived that those technological tools, especially mobile phones, computers, DVD players lead children into immoral behaviors. Truly, Rodriguez-Gomez, Castro and Meneses (2018) reported that ICT brings onboard some risk for young people with psycho-emotional and social development problems ranging from watching pornographic videos, stealing, and all sort of misbehaviors that affect their person life.

v. Limited time

In most cases, parents have the competence, confidence, knowledge and skills to assist their children use the ICT tools at but they lack time. Ghavifekr, thanusha, Logeswary and Annreetha (2018) reported that most people with the skills complain of lack of time to involve their children to explore the ICT tools especially the use of computer and internet devices.

vi. High Cost of ICTs tools

Accessibility of ICT tools challenges could be attributed to the high cost of the tools. Analytically, Soma, Nantomah and Adusei (2021) believed that all ICT tools are costly, and it even makes it difficult for educational institutions to integrate it into the teaching and learning system in today's lessons. For

instance, the high cost of personal computer, the cost of internet connections, projectors, mobile phones, televisions, digital tablets, computer games software, and other devices prevent parents from acquiring the ICT tools for the children. The ICT tools supposed to be necessity in this modern technological world or information age but as result of financial restrictions, they have now become a luxury and most parents lack resource to purchase them.

Theories underpinning the Study

In this study, the purpose was to explore the belief and self-efficacy of computer usage among children in the home. This means that the focus of the study is linked to children learning outside the school environment. Another possibly implication of the study is on how ICT tools mediate children learning aside the four walls of the classroom. In this perspective, it is imperative to substantiate that the optimum utilization of ICT in the homes depends on the learning theories and self-efficacy theories. Therefore, Bandura self-efficacy theory supported by three learning theories such as behavioral theory, cognitive learning theory and constructivist learning theory were discussion under this study.

Self-Efficacy Theory

Self-efficacy theory was originally proposed by Albert Bandura a psychologist. In his own word defined self-efficacy as an individual judgment of "how well one can execute courses of action require to deal with prospective situations" (Bandura, 1977, p 191). In a simpler term self-efficacy is one's belief in their worth to succeed in a particular situation. Since then several psychological scholars have given another perspective on self-efficacy. One of such scholars is Kathy Kolbe who believes that believing in one's own

capabilities is essential in measuring cognitive strength (Kolbe, 2009). According to Bandura one's self-efficacy can serve as a foundation for motivation, well-being and personal accomplishment. He therefore indicated that self-efficacy is developed based on four main sources of influence; i. mastery experiences, ii. Vicarious experiences, iii. Social persuasion and iv. Emotional states.

There are assumptions that high self-efficacy is linked to high learning achievement and healthy lifestyle. To Bandura Lopez-Garrido (2020) mastery is achieving or proven with the best ways of learning a new skill in a given activity by practicing. The vicarious experience involves observing other people successfully to complete an activity. On the social persuasion, Bandura believes that learning should be accompanied with positive feedback while undertaking the activity. With regard to the emotional and psychological state, it is assumed that the physical, emotions and psychological well-being of an individual can influence how one feels about his personal strength in a particular circumstance. It should be noted that Bandura's self-efficacy theory is based on social-cognitive learning theory.

Behaviorism Learning Theory

Although, there are several behaviorist learning theories, but all view learning as a mechanical process of associating stimulus with response to produce a new behavior. Among some of the behaviorist theories are Pavlov's theory of classical conditioning, Watson's theory of learning and Thorndike's theory of learning. In this sense, the main assumption behind behaviorist learning theory is learning is strengthening by reinforcement (Shield, 2000). The theory is very relevant to children use of ICT tools in the homes in the sense

that learning experience needs to enjoyable while using ICT in the house. Children may lose interest once the content is not interesting.

Another key component that has made behaviorist theory paramount to ICT use is it reinforcement aspect. Skinner was with the view that children learning can be more effective if parents motivate them. In a more digital sense, computer assisted instruction are developed in such as way children can assess their progress and get feedback about the task they are performing through technological devices that give feedback verbally, textually or pictorially.

Cognitive Learning Theory

The development of cognitive learning theory is attributed to the renowned psychologist, Jean Piaget in 1936. The theory is propounded to suggest that knowledge is actively constructed by learner through mental construct on previously known structure (Brown, 2019). According to Ertmer and Newby (2013) the theory is based on assumption that learning is based on the principles of focusing on what you know, rather than your response to stimuli. It is also base on principle of emphasize on structure that is focusing on connections and orders and plans, and active approaches. From the perspective of Brown (2019) the theory is relevant to multimedia learning since human mind process visual and auditory representation in two separate channels known as dual coding. Children learn more through pictures. Hence, ICT use is directed towards engaging the children with the content in a way that is always recall.

Constructivism Theory

Although the constructivists theory believes the existence of real world but oppose the assumptions with the cognitivist and behaviorist belief that knowledge is mind-independent and can be ‘mapped’ onto a learner (Ertmer &

Newby, 2013). The theorist based their assumption on the fact knowledge construction on interpretation and experiences of the world.

There are several assumptions of constructivist theory to the use of ICT tool. These assumptions according to Shield (2000) are:

1. The theory emphasis the identification of the context in which the skills are learned,
2. Learner control to manipulate the information is required
3. Children at the learning centre need to be presented in a variety of ways
4. Scaffolding is important to the learner to reach beyond the given information
5. Knowledge is constructed with the experience from the environment

From the constructivist point of view learner should not be a merely recipient of the knowledge constructed by others but should be in active construction of the knowledge. ICT has the potential to assist the children in constructing their own knowledge. From UNESCO (2011) the relevance of constructivist learning theory in children using ICT in their life, have been supported with the fact that:

1. ICT use for enhancing children engagement
2. ICT use for supporting knowledge construction
3. ICT use for making learning a social process
4. ICT use for situated learning
5. ICT use allow parents to create learning environment for authentic tasks

Relevant Empirical Studies

The review of the empirical studies was done according to the main themes of the objectives of the study, which includes belief and self-efficacy,

access and usage of ICT, parents educational background, impact of gender and age on the use of ICT and challenges in using ICT.

Empirical Studies on Beliefs and Self-efficacy

In finding out digital home learning, Bonanati and Buhl (2021) investigated the digital home learning environment and in relation to children self-efficacy. Quantitative data collection was made with a sample size of 651 children across five different schools. The findings from the study showed that families' culture, parent's attitudes to shared internet activities contributed tremendously at home to ICT self-efficacy. They also observed that there was small gender difference and digital home learning support ICT children' self – efficacy.

A recent study conducted by Kundu and Tripti (2021) on effects of self-efficacy and infrastructure on teachers ICT use, an extension of UTAUT with 400 sample size of teachers using descriptive survey research design. The findings showed that perception of self-efficacy and infrastructure were significant predictor of teacher's ICT self-efficacy. It was also found out that perceived infrastructure had a strong influence on teachers' ICT self-efficacy.

Self-efficacy study has been conducted by many scholars. Recently, Hatlevik, Throndses, Loi and Gudmundsdottur (2018) made a study on students' ICT self-efficacy and computer and information literacy: determinants and relationships. The study was a systematic review. The findings revealed that learners' self-regulation, experience with technology and socioeconomic background explain the variation in the ICT self-efficacy. Again, it was revealed that gender in ICT play a very important role in learner's understanding of ICT.

It was also found out that self-efficacy is linked to computer and information literacy.

Empirical Studies on ICT Access and Availability

The use of ICT tools in the home has been studied by many scholars but recently, Yun Wen, Choon Lang and Sin Lau in 2020 engaged in a study on the use of ICT in homes. Systematic review approach to review the existing studies. It was revealed that ICT tools supported children learning outside the classroom. However, there were multiple prerequisite components of the home-based learning of the ICT such as accessibility of ICT tools and connectivity, positive interest of the parents, and parental support.

The National Communication Authority (NCA) in collaboration with Ghana Statistical Service (GSS), in 2020 conducted a national survey on ICT use in Ghana. The study was based on all indicators such as access, usage, skills and digital divide. A total of 5946 households were involved in the study with 15, 934 individuals involved. The findings showed that 54.1% of the individuals aged five years and older own a functional mobile phone, regarding the computer ownership, 7.9% person aged five and older own a computer, 5.1% own laptops, 1.6 % own tablets. Concerning internet use, 39.7% aged five and older knew what the internet was and 56.5% used the internet in the last three months. It was also revealed that 70.1% of the household own radios, 68.9% televisions and 16.8% having internet.

It has also been noted that Karakara and Osabuohien (2019) had a study on households' ICT access and children's vulnerability when it comes to education in Ghana. The findings revealed gaps in wealth distribution among Ghanaians, and wealth of the family had great influence the child success in

education and urban household children are less likely to be disadvantage in learning outcomes. It was also found out that household access to ICT enhances the child learning at home.

It was also found out that Uzoka and Okafor (2010) also conducted a study on the application of Information and Communication Technology (ICT) in Home Economics education in Nigeria. The findings show that some of the children's academic needs in the school can be met through the use of ICT. There is also the opportunity to improve children quality of life especially children with disabilities.

Empirical Studies on Challenges of Using ICT

A recent study conducted by Soma, Nantomah and Adusei (2021) on challenges facing the integration of ICT in Ghana Educational System using systematic review approach on 112 publications with 24 being between 2007 and 2020, found out that the use of ICT in education in Ghana was championed by the government of Ghana with the aim of improving Ghanaian educational system. However, lack of ICT infrastructure, poor internet connectivity, inadequate know-how and high cost of computers were the challenges affecting the ICT integration. Soma, Nantomah and Adusei did well by revealing some major challenges of using ICT in Ghana, however, there is more room to authenticate the challenges empirical rather than systematic review.

Another study was also made by Rafeqeq and Ali (2021) on the challenges and opportunities in the use of ICT at tertiary level: Teacher's perceptions. Descriptive research design was employed with a sample size of 250 teachers. Questionnaire was the main tools for data collection. It was

revealed that although there are several opportunities for using ICT, but it has some obstacles such as lack of access, training and technical know-how.

A study has also been made on the challenges of using ICT. Ghayifekr and Thanusha, Logeswary and Annreetha (2018) had a study that aimed at investigating teaching and learning with ICT tools: issues and challenges from teachers' perceptions. A sample size of 100 teachers were involved. A quantitative research design was employed with questionnaire being the main tool for data collection. It was found out that lack of effective training, limited technical support, limited accessibility and network connection and incompetence on the part of the teachers were the main challenges to ICT usage. In spite of their contribution, the study was centred on teachers' perceptions.

Finding out the communication technology has been used by children, Jurka and Pija (2012) conducted a study on communication technology in the home environment for four-year-old children. The study was non-experimental using descriptive method with 130 parents. It was revealed that children access to ICT usage at home influence the children ICT usage on their development of competencies. Even though, the researchers made attempt to determine the influence of ICT on the children, the study was in age specific.

Concerning the challenges, Ogbomo (2011) conducted a study on issues and challenges in the use of Information Communication Technology (ICTs) in education. Systematic review method was used. It was found out that teachers and learners should understand that there are basic issues such as ICT effectiveness, cost, equity and sustainability that support ICT use, while infrastructure, capacity building, and financial constraints surrounding the use of ICT. Although, some major challenges were reviewed, it important to note

that the challenges were not empirical evidence which can be linked in a contextual based.

Geological Challenges of Using ICT in Ghana

Although, challenges of using ICT in homes are many as discussed, there are several literatures that have reported that lack of skilled or limited ICT personnel, poor telecommunication infrastructure, ineffective integration of ICT into business, high price cost of equipment and government regulations are some major challenges facing the ICT industry. With regard to challenges of ICT usage in the southern communities, much literature has not been found, especially children usage of ICT in the home. Ghana is a developing nation with Accra being it capital city. However, a significant lesson could be drawn from Yeboah (2015) who revealed that Cape Coast schools' pupils and teachers only use computer as the main ICT resources although teachers were having skilled to operate. It was also noted that high cost of ICT, unstable electricity and lack of integration of ICT into our daily activities were some challenges facing Cape Coast communities.

The geological challenges are not limited to specific communities as some of the challenges are associated with same or similar areas. Similar findings by Akomea-Bonsu and Sampong (2012) indicated that lack of internal technical capabilities, financial constraints, lack or poor infrastructure and personal factors affect the use of ICT in Ghana. Other challenges were internet access challenges, outdated equipment and expensive charges of ICT services. A recent study conducted by AiKens and Arthur-Nyarko (2019) also revealed that lack of regular access to ICT tools affect the effective use of ICT in the

Cape Coast Metropolis. It was also reported that negative attitudes affect the adoption of ICT usage.

Conceptual Framework

From the theoretical and conceptual review on self-efficacy theory and its impact on learners in the use of ICT tools have been revealed in the framework. These variables have been summarised in the conceptual framework presented in Figure 1.

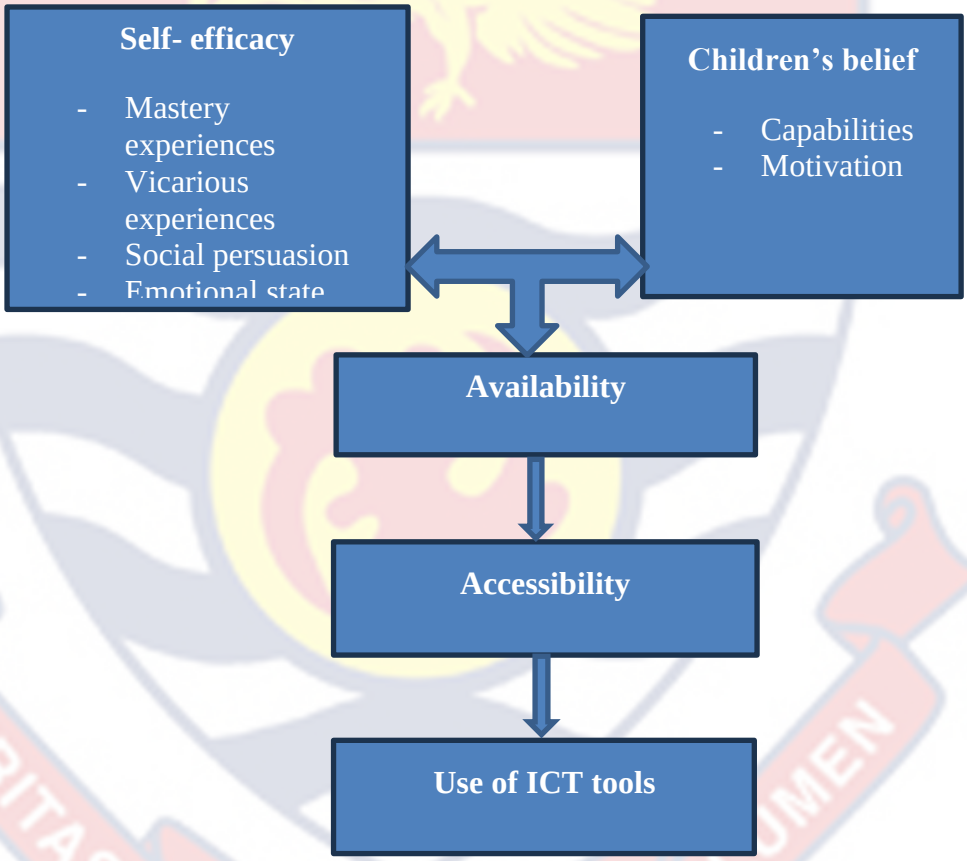

Figure 1. Conceptual framework

Source: Author's construct (2023)

The conceptual framework demonstrate the interaction between pupils self-efficacy in relation to mastery experience, vicarious experience, social persuasion, emotional state among others with the capabilities and motivation of children's belief. These interactions have implication on the availability and

accessibility of the use of ICT in the homes of pupils. It is clear that availability of the ICT tools increases its accessibility to use them. Children with high skills in computer usage are highly found in where ICT tools are available and this intend bridge the gap between learners access to ICT at home.

Summary of the Chapter

Children are growing in a digital world with varied skills, understanding and knowledge, and moreover, young children are found with media-saturated world with magnitude of technological experiences which differ from previous generations. These assumptions necessitate the study of exploring the belief and self-efficacy of computer usage of children in the La Dadekotopon Municipality.

This section has discussed several relevant themes on the topic under study including the concept of ICT, importance of ICT, historical overview of ICT development in Ghana, Ghana's ICT policy framework, potential of ICT in children's learning, availability and access of ICT tools to children, effects and challenges of ICT usage in the homes. Other themes discussed under this section include self-efficacy and ICT self-efficacy, home learning environment, digital home learning environment and gender difference in the ICT usage. The chapter also covers the theories that underpins the study.

CHAPTER THREE

RESEARCH METHOD

Overview

This chapter discusses the methods used in carrying out the study. It focuses on the research design, setting, the population, the sample and sampling technique, instrument used in gathering data, data collection procedures and data analysis.

Research Design

Research design is a very important aspect of every study as it holds the blue print to how a study is conducted. According to Creswell (2012), research designs are plans for research that determine the choices for data collection and analysis. Maina (2012) sees research design as a format for an investigation or a procedure for conducting and controlling a research project. Alternatively, it can be termed as the blue print which indicates the strategies for conducting the research.

Based on the concepts in the research questions, ethnographical case study research design which falls under qualitative data collection was adopted. In the views of Denzin and Lincoln (2011), ethnography research design emerged from anthropology, which is a qualitative methodology that seeks to study the beliefs, social interactions and the behaviours of small societies, that based on observation and interpretation of data collected.

Again, Naidoo (2012) indicated that in an ethnological study the researcher lends itself to the study of social interactions, beliefs and behaviours of small societies involving participation and observation over a period of time and the interpretation of data collected is done of unstructured accounts which

provides interpretation of meaning. Denzin and Lincoln (2011) added that ethnography is method that allows the researcher to give much better ideas in life that images grab the attention in ways that word on paper cannot do. This makes the ethnography a more appropriate for this study because it fits and important to include pictures to support the words of narrations.

The choice of the ethnography was appropriate since Creswell (2012) defined it as writing about group of people. Again, the method allows varied approaches for data collection such as observation, ethnographic interview, elicitation methods, audio-visual methods, collection of cultural artifacts, etc (Gatti, 2018).

The rationale for the selection of this method also lies on the assumption that the researcher needs more complete understanding and better contextualised instrument to reach the population. Ethnographical research design under qualitative data collection was selected to best serve the purpose of the study because the researcher was with the belief that a study which aimed at exploring the belief and self-efficacy of computer usage among children living along the coastal belt of Ghana will best be espoused using this design.

Philosophical Position of the Research Design

A case study in ethnological qualitative data collection approach is a research design of inquiry coming from sociology and anthropology point of view that shared patterns of behaviours, of an intact cultural group in a natural setting (Berry, 2011). The researcher was of the view and agreeing to constructivist or interpretivist paradigm that understands the subjective world of human experiences (Kivunja&Kuyini, 2017). It is also understood that

interpretative paradigm makes an effort to understand the viewpoint of the subject being observed.

Population

In determining the appropriate sample size for the study, a consideration was given to the meaning and the understanding of population. From the perspective of Creswell (2012) population is made up of all the subjects a person wants to study. This means that a population is made up of all the possible cases (persons, objects, events) that constitute a known whole. In the study of Asiamah, Mensah and Oteng-Abayie (2017) population is an entire group about which some information is required to be ascertained, hence the general population must be a single attribute which mean they must share the same characteristics. Since the focus of the study was to explore the belief and self-efficacy of computer usage among children living along the coastal area of Ghana, the general population of the study consisted of all the children living along the coastal area of Ghana.

The large size of the general population made the researcher think about the target population. In the opinion of Asiamah, Mensah and Oteng-Abayie (2017) the target population is the subset of the general population on the basis of containing no attributes that controverts a research objective. The target population of the study constitutes all the children living within the confinement of La Dadekopon Municipality in the Greater Accra. Taking a cue from Asiamah, Mensah and Oteng-Abyie (2017) in population study, it is imperative to say that the smaller the size of the population, the easier to conduct the study. With regard to this study, the accessible population consisted of all the children living in La and Teshie Communities.

Sample and Sampling Techniques

Research sample is a sub-set of a population which must have properties which make it representative of the whole (Creswell, 2013b). The nature of this study did not permit the researcher to include all available population for the study during the case study, hence only the sample population was studied. This study adopts the stratified purposeful sampling technique. Therefore, the study consisted of 20 sample size which consisted of 10 children and 10 parents who were purposely selected because this is to capture major variations rather than to identify a common response as Patton (2002) opined that the use of stratified purposely technique achieve the goal of providing varied responses in a given study. The parents selected were the children's parents. Five children were selected from La Community and 5 children from Teshie Community. The children were voluntary selected because they have in-depth knowledge about the topic under study. The sample size was obtained through voluntary sampling techniques.

Sources of Data Collection

The researcher relied on both data collecting sources, which are primary and secondary sources for this study. The primary source of data for this research was obtained through the use of interview from the selected participants. On the other hand, the secondary source of data for this study was the documented information obtained from articles, journals, publications and books and other internet sources. These enabled the researcher to get access to information to review related literature and theories relevant to the topic understudied.

Instruments

After a careful review of the literature and the research questions, interview guide was employed to collect data to answer the research questions set for this study. Interview is a method of gathering information that involves presentation of verbal stimuli and reply in oral-verbal terms (Creswell, 2013). The researcher used interview because considering the nature of the research questions and the approach of gathering the data, interview was the best approach to get the right information from them. In order to be gather the appropriate data to serve the intended purpose, a semi-structured interview with guided questions was used by the researcher to obtain the necessary results to answer the research questions.

The interview was designed for both parents and children to elicit various responses. The key features of the children's interview guide were their demographic, belief and efficacy, availability of ICT tools and challenges in using ICT tool at home. The interview guide for the parents on the other hand looked at their demographic information, the use of ICT at home, availability and the use of ICT tools by children at home. To ensure validity of instrument, the instrument was developed under close guidance of the supervisor. After the questions were designed, they were piloted to a tenth of the sample. This helped to identify ambiguous questions in the instruments and be able to re-align them to the objectives.

Data Collection Procedure

Prior to the administration of the data, an introductory letter was obtained from the University of Cape Coast to conduct this study in the area. The introductory letter was used as authority note to ask permission from

parents to participate in the study. The purpose of the study to explore the belief and self-efficacy of computer usage through ethnological study of the children living along the coast of Ghana was explained to the participants. To understanding and obtain accurate data from the children and parents the interview was conducted personally to the participants. This gave the researcher an opportunity to clear any misunderstanding from the participants. The importance of the study was briefly explained to respondents before the interview. They were admonished to be truthful and thoughtful in their responses.

Ethical Consideration

The following safeguards were employed to protect the participants' right and to meet the institutional requirements. As any study demand to meet the ethical principles of research work, this study was done according to the laid down requirement or principles of the University of Cape Coast. First and foremost, the researcher was obliged to respect the values, needs, rights and the desires of the participants. The research objectives were explained verbally to the participant for them to acknowledge the importance of the study. Permission to conduct the study was obtained from the University of Cape Coast. The participants were told about the data collection process and the activities involved. It was agreed between the researcher and the participant of report participants as anonymity.

This study is the author's own work and has not been presented as any study by the author or any other person or persons in any institution. The study was duly conducted by the author and all related data was ascertained by the author. No part of this study was forged, pirated, copied or plagiarized. Any

quotation that was made in this study was duly referenced according to the requirements.

Data Analysis Procedures

The recorded data from the interview session were transcribed and presented in themes in connection with the research objectives. Data collected for the study were analysed using thematic approach.

Chapter Summary

The techniques employed to respond to the study's objectives were covered in this chapter. To accomplish the study goal, ethnographic research design is used as the qualitative research technique in the chosen research design. The chapter covers the deliberate selection of participants through stratified sampling technique from a variety of homes to fulfil the objectives of this work. This chapter also described how the analysis was conducted. The chapter discusses ethical issues and steps to ensure the research's legitimacy. The study's data analysis, results, and a summary of the discussion of the suggested research objectives of children's self-efficacy and exploring the geolocation challenges in the use of ICT tools are included in the following chapter (Chapter 4).

CHAPTER FOUR

RESULTS AND DISCUSSION

Overview

This chapter presents the findings from the interview as well as the discussion. The findings are presented according to the following themes:

1. The Participants background
2. To determine availability of ICT tools at La Dadekotopon Municipality.
3. To explore young children's access to the usage of ICT tools at home.
4. Find out children's self-efficacy of using ICT at home.
5. Find out children's belief of using ICT at home.
6. To find out how Socio-demographic background of parents' impact children's use of ICT in the home.
7. To explore geolocation challenges children, face while using ICT at La Dadekotopon Municipality.

Participant's Profile

The study involved 20 participants, consisted of 10 children and 10 parents. The children were selected from two communities, the La community and Teshie community. The names as used in this chapter are pseudo names adopted for the purpose of confidentiality eg. Cindy, Cinmo, Henry, Henfa and others.

Children's profile

The background of the children covers sex, age, class, parental status and number of siblings. The details of the participants' profile have been presented in Table 1.

Table 1: Children's Profile

Participant	Sex	Age	Class	Type of school	Caregivers	Number of Siblings
Cindy	Female	16	JHS 2	Public	Mother	5 (3 boys, 2 girls)
Portia	Female	15	JHS 3	Public	Father & mother	2 (girls)
Nhyria	Female	15	JHS 3	Private	Father & mother	1 (boy)
Rahman	Male	16	JHS 3	Public	Father & mother	4 (3 boys, 1 girl)
Sammy	Male	17	JHS 3	Private	Father & mother	5 (2 boys, 3 girls)
Venesa	Female	15	JHS 2	Public	Father	3 (2 boys, 1 girl)
Olivia	Female	14	JHS 3	Public	Father	3 (boys)
Henry	Male	14	JHS 3	Public	Father & mother	3 (boys)
Joeberta	Female	14	JHS 2	Private	Father & mother	3 (2 girls, 2 boys)
Augustina	Female	14	JHS 3	Public	Mother	3 (girls)

(Source: Field data, 2022).

From Table 1, 10 children participated in the study. Out of the 10 children, 7 were female with only 3 boys. Their ages range from 14 to 17. Four (4) children were 14 years, three (3) were 15 years, two (2) were 16 years and one been 17 years. Out of the 10 children only three children attend private schools. Concerning whom the children were staying with, six (6) of them were staying with their father and mother, two (2) were staying with their mother with

two (2) also staying with their father. From Table 1, it was observed that at least each child was having a sibling.

Parents Profile

The parents selected were the children's parents. Five children were selected from La Community and 5 children from Teshie Community. The parents background information cover age, education background, number of children and their occupation.

Mr. Augfa

Mr. Augfa is 46 years old man. He holds a Senior High School Certificate. His daughter is Augustina a 15-year student in JHS three.

Mr. Nhyrifa

Mr Nhyrifa is 45-year-old man holding a tertiary certificate. His daughter is Nhyria a 15-year-old student in JHS 3. He stays with wife and one boy.

Mr. Rahfa

Rahfa is 43 years old man with no formal education. His son is Rahman who is a 16-year JHS 3 student. Mr. Rahfa is a businessman. He has four children 3 boys and a girl.

Mad Venmo

Venmo is a 53-year-old woman who has no formal education. Her daughter is Venesa a 15-year-old JHS 2 student. She is a trader. She stays with her husband and three children 2 boys and 1 girl.

Mad. Pormo

Mad Pormo is 37 years old woman and a mother to Portia who is 15 years and JHS 3 student. Pormo stays with her husband and 2 children who are all girls.

Olifa

Mr. Olifa is 38 years old young man holding JHS certificate. He is a master tailor with three girls. His daughter is Olivia a fourteen-year JHS 3 student.

Mad.Cinmo

Mad Cinmo is the mother to Cindy. She is 36 years old with Senior High school certificate. She is a single mother of 5 children three boys and two girls. She is the mother of Cindy in JHS two.

Mr. Henfa

Mr. Henfa is 62 years old man staying with his wife. He holds Middle School Living Certificate. His son is Henry. He is a retired trader. He has 9 children of which 6 are males and 3 are females.

Mr. Samfa

Mr. Samfa is a father to Sammy, a 17-year-old boy in JHS 3. Mr. Samfa holds a tertiary certificate. He currently works as an IT specialist for a private company. He stays with his wife and five children two boys and three girls.

Mr. Joefa

Mr. Joefa is a father to Joeberta, a 14-year-old girl in JHS two. Mr. Joefa is 48 years, stays with his wife and three children, two girls and a boy. He holds a tertiary certificate. He is currently a businessman.

Availability of ICT tools in the Home

The research question one was asked to find out the available ICT tools in the children's home. In getting the findings, children were given a listed ICT tools to indicate which of them is available in their home. Table 2 displays the number of ICT tools present in the children's homes. The results were presented according to children's homes. It is apparent from the literature review that availability of ICT influence the usage of ICT in every endeavour. To determine

ICT tools in the home, a list of digital tools was given to children to indicate which is available in the home. The result is presented in Table 2.

Table 2: Availability of ICT tools in the Children's homes

ICT Tools	Cindy	Portia	Nhyira	Rahman	Sammy	Venesa	Olivia	Henry	Joeberta	Augustina	Total
TV	√	√	√	√	√	√	√	√	√	√	10
Toys-robots											0
DVD/CD/tape player and discs	√	√			√		√	√			5
Handheld electric. games											0
Game console								√			1
Educ. software											0
Digital camera	√	√	√	√	√	√		√	√		8
Computer	√				√		√				3
Printer											0
Video camera	√	√	√	√	√	√		√	√		8
Internet											0
Radio	√	√	√	√	√	√	√	√	√	√	10
Mobile phone/ Smartphones	√	√	√	√	√	√	√	√	√	√	10
Drawing software											0
Writing software											0
Uses e-mail	√			√	√			√			4

(Source: Field data, 2022).

From Table 2, the most commonly ICT tools found in the children's homes are television (TV), radio, mobile phones and digital and video camera which were a component of Mobile phones. From the result the most commonly ICT tools are the television, Smartphones and radio. From the result, computer,

internet, and DVD/VCD player were found in some children's home. Other ICT tools such as writing software, drawing software, printer, toys-robots and handheld electric games were not available in the children's homes.

From the result, conclusion was made that, the most available ICT tools in the home were television, radio and smartphones, while educational ICT tools such as printer, video camera, educational software and game console were not available. This finding confirmed, Soma, Nantomah and Adusei (2021) assertion that availability of ICT tools is still a challenge which could be attributed to the high cost of the tools. Analytically, the finding also concurred with Karakara and Osabuohien, (2019) that Ghanaian children are still having challenge in getting ICT tools at home. It is very unfortunate that none of the homes was identified with educational software which children can self-relied on when at home.

Young children's access and usage of ICT at home

The research question two was asked to find out how children get access and use ICT tools at home. In getting the findings, children were asked to mention any ICT tools that they have used before or currently using. Table 3 displays the percentage of children having access to different technological items. The results were presented according to children having access alone, with siblings. Having access with father or mother and having access with friend and those that they need help for learning it.

Table 3: Children access to ICT tools

s/n	ICT tools	Never	Number of children having access	Alone	With siblings	With father or mother	With friend	Needs help
	Toys-robots	10	0	0	0	0	0	10
	Handheld electric. games	10	0	0	0	0	0	10
	Educ. software	7	3	0	0	0	3	3
	Ms Office	3	7	1	1	0	5	10
	Printer	6	4	0	2	0	2	10
	Internet	4	6	0	2	0	4	10
	Mobile phone	0	10	6	2	2	0	0
	Uses of drawing software	10	0	0	0	0	0	10
	Looks at digital photos	0	10	10	0	0	0	0
.	Visits websites	4	6	3	0	1	2	10
.	TV	0	10	5	3	2		0
.	DVD player	2	8	2	4	2	0	0
.	Game console	8	2	0	0	0	2	10
.	Digital camera	9	1	0	0	0	1	10
.	Computer	0	10	1	2	1	6	10
.	Video camera	10	0	0	0	0	0	10
.	Radio	0	10	7	2	0	1	0
.	Plays computer games	5	5	0	0	0	5	7
.	Use of writing software	10	0	0	0	0	0	10
.	Uses e-mail	6	4	0	0	0	4	6
.	Total	104	96	35	18	8	35	136
.	Total percentage (%)	52	48	36.5*	18.8*	8.2*	36.5*	68

(Source: Field data, 2022). Figures with asterisk (*) were calculated with the total number of children having access with ICT tools

From Table 3, 52 percent of the children interviewed have never access to any of the 20 selected ICT tools while 48 percent of the children have access to the all the 20 ICT tools provided. Out the 48 percent of the children having access to the ICT tools, 10 ICT tools have never been used by five out ten children interviewed. From the findings it was revealed that 36.5 percent of the children interviewed came to contact alone, 18.8 percent with siblings, 8. Two percent having access with parents and 36.5 percent having access with friends. When children were asked whether they still need help to learn what they have access 68 percent affirmed yes. The following statements captured their responses.

Portia Said:

> *"... yea I will be happy if I have someone in the house to teach me. When we go to school we have little time to learn"*

Henry said:

> *"In fact, I am still learning some of the tools, the thing is that not all of the software do I know how to use. For example, I don't know how to use the excel and the power point, I still find it difficult to use the internet. So, if I have somebody to teach me, I would be very happy"*

Augustina also added that some of the ICT tools are very difficult to learn which needs someone to teach you before one is able to use them. This is how her statement was captured.

Augustina Said:

> *"Sir I know how to use the phone, radio, television, but for the computer I can only boot it and open the Painting app. There are more things I need someone to teach me before I can use it alone. For the radio and television, it is easy to use, if no one teaches you, you can operate it and use but…"*

On the issue of access to the ICT tools Sammy showed me the phone the parents had given to him for calls when he comes to house (Figure 2). He even uses the phone to make calls to prove how conversant he could use the tool.

Figure 2: A Child on receiving calls from another person

Children access to ICT in the home seemed to be more essential for the development of ICT self-efficacy (Hammer, Scheiter & Sturner, 2021).

From the findings, it was also revealed that children only have access to traditional ICT tools such as radio, television, tape recorder, and computer. On the other hand, most children are not having access to complex ICT tools that demand software applications. Therefore, conclusion was drawn from the findings that most children do not have access to ICT tools in the home. Again, it was also found out that the most commonly accessible ICT tools to the children at home were mobile phones, Television, radio and computer. Concerning children usage of ICT tools, it was found out that children have been using ICT tools with their friends and learning it alone. Previously, Osei-Wusu (2013) has indicated that children access to ICT was poor and rural communities' access is very challenging. However, the findings gathered indicate that children access to ICT is also a challenge in the urban centres as it has been identified in this study. The current findings have indicated that there is lack of access of ICT resources in the country both in the school and at home and this is consistent with what Simin, Kunjappan, Logeswary & Annreetha (2017) identified in their research that not all urban areas are without technological challenges.

The children's belief and self-efficacy of using ICT at home

The research question three sought to find out the children's belief and self-efficacy of using ICT at home. belief is a mental held understanding and the propositions about the world that are held to be true (Galvis, 2012), while self-efficacy could be understood as beliefs about a person's ability to perform a specific behaviour successfully (Bonanati & Buhl, 2021). In fact, in this era of technology, identifying children's beliefs and self-efficacy about the use of ICT is very important because with the on-going integration of ICT in schools,

children need to have in-depth understanding of the relevant and an important factor that contributes to favourable ICT self-efficacy which is crucial and enhances children learning environment.

From the findings all the children interviewed were with positive belief and with high positive self-efficacy about ICT. The children were with the belief that ICT is something that will help them achieve their dreams and making their life very simple to live. As regard to the children's belief and self-efficacy about the use of ICT, the children's responses were categorised into four areas: ICT in sharing information, ICT in creating information, transforming information and using information safely and securely (Fraillon, Ainley, Schulz, Duckworth, & Friedmanet, 2019).Children's belief and self-efficacy of using ICT in sharing information. The following excerpts were captured from the children.

Portia Said:

> *"ICT is very important to my life. I believed that through the use of ICT such as the phones, computer, radio, television I will be able to send any message to my friends. I use Facebook, text messages, Whatsup to communicate with my friends. I think ICT is very useful to me"*

Using ICT in sharing information was also echoed when having conversation with Rahman and Olivia. For instance, this is how Rahman's statement was captured.

Rahman Said:

> *"I have a belief that ICT is very important to me currently and in future. These days, we do everything with ICT tools. For*

example, I listen to news, watch television, call friends and friends also share information with me through using ICTs. I believe ICT tools play errh… very important roles in our lives".

Using ICT tools in creating information was highlighted by three children, Cindy, Sammy, and Augustina. They have the belief that ICT tools are used to create information and it makes it easy. This is how Sammy's statement was captured.

Sammy said:

" … sir, we use ICT tools to make music, the computer is used to type our letters, mmm …there are other technological tools, errrrh I have forgotten more of them. But Sir, they help us to create information, yea for making pictures, posters and many more".

The children were having a belief that through ICT tools information can be safely and securely kept for future use. Indeed, preservation of our culture and tradition depends on how safe that information has been kept in the achieves. This is one of the essences of going to school. Therefore, the children were right to have a belief that ICT tools are the perfect instruments to keep our information safe and secure. Nhyria also agreed to Vanesa on the function of ICT tool regarding to our information safety and security.

This is how Nhyria's statement was captured.

"I use ICT tools like phones to keep my pictures and videos. Err … I remember I had my birthday photos and videos on a pen drive, I contested a 'Spelling Bee' competition and my mother

asked a photographer to cover the event. So, I have kept them for future. Ahaaa sir, you are using the phone to record me. It is also part".

It was a surprising to hear from one of the children about having a belief that ICT tools are used to transform information. This is how Joeberta's statement was captured.

Joeberta said:

"Okay, yes ICT tools are changing this world. Now we do everything with ICT tools, our teachers use ICT tools in teaching, computer games, even modern cars use computer, a lot of our communication are done through ITC tools. ICT tools have really changed our societies in the way of talking to one another".

After, when Joeberta was visted at home she was captured using phone with internet in preparing her homework (Figure 3).

Figure 3: A girl using phone with internet to do her homework

On the issue of children ICT self-efficacy, the parents also agree that children of today have high self –efficacy. The children are very creative, innovative, and are able to explore to the extent that when they get access any technology tools it is easy for them to use them.

For instance, SamFa gave these remarks.

> *"My brother, the children of today are very fast in learning the technology. Just imagine the way these little kids explore phones are very wonderful. Look at how they play games on the computer. I have a small boy in the house, my brother stops. He can operate the phone at his best confidence. I agree that children are with high positive belief and self-efficacy about ICT tools".*

Concerning the children's self-efficacy about the use of ICT it was not surprising that all the children were with high confidence to use ICT in their daily lives. As literature indicates, self-efficacy is one of the motivational constructs when talking about attitudes. ICT self-efficacy relates to children's beliefs about how successful they can get access, use and manage information using ICT tools.

This finding revealed that children living along the coast of Ghana have high confident level of using ICT tools at home and even beyond the borders of the house. All the children interviewed confirmed that they have used one or more of the ICT tools before and they were with high confidence that they can use others that they have not yet used before.

From the current findings, it was concluded that children have positive beliefs about learning ICT. They have the belief ICT is very beneficial to their daily life activities as well as their future career. The children feel more self-confidence of learning with ICT tools in the home. For the findings to reveal that children are with high positive beliefs about ICT suggest that Fraillon, Ainley, Schulz, Duckworth, and Friedmanet (2019) were right to say that the children have ability to own and use technological tools to create, communicate and investigate in order to participate effectively at school, at home, in the workplace and in the society.

The impact of parents' Socio-demographic information on children's use of ICT in the home

Research question 4 seeks to find out the impact of parent demographic background that influence children children's use of ICT in the home. This research question was asked to find out how parents influence children's usage of ICT in the home. Regarding this study, parental gender, and parental educational background were the demographic factors that were assessed.

Although, there has been several studies establishing the fact that gender difference exists in ICT use and self-efficacy (Tsai & Tsai, 2010; Vekiri & Chronaki, 2008). However, little did we know about parent's age, gender and educational background difference assisting children in using ICT tools at home. Indeed, several factors influence how children learn both at school and in the home. All these factors help nature children's belief and attitudes towards ICTs. But this current finding revealed a varied respond to gender and educational background in supporting children learning of ICT in the home.

Gender difference in support of children learn ICT tools at home

Concerning the gender in supporting children learning ICT, there were mix responses. However, it was revealed that most of the support the children had was from the fathers. Out of the 10 children interviewed, 7 of them acknowledged that they are often assisted by males, either in the home or outside the home. These are how the excerpts were captured.

Rahman had this to say:

> *"For my first time of handling the mobile phone, it was my friend who gave it to me. But if I think about my father and mother, I will say my father helps me more than my mother. He sometimes teaches my mother how to play some of the games on the phones. Even, if the channels on the multiTV is missing my father will show us how to do it".*

Cindy also said:

> *"For me, my mother was having the phone, so one day I hid myself and picked it. I went through it. From then, anytime she leaves the phone, I will go and pick. I started learning it myself. But for learning how to on and control the television, it was my elder brother who taught me. Mother doesn't know much about the phones".*

Joeberta also added that her father teaches them how a lot of using the television and mobile phones. She indicated that her male friends taught her how to play games on the computer.

This is how her statement was captured.

"Eeiirh do I remember, okay, I acquire remember my father teaching me how to use DVD play. My father use to travel, he taught me how to use the DVD player and the sound system in the house. But for the mobile phone, eeeeh my elder brother taught me. Yea I will say that my father influences me more to learn the ICT tools."

Concerning parent thought of helping their children learn ICT in the home, the parents confessed that they are not doing well in support of their children having access and use ICT in the home. This how some of the remarks of the parents were captured.

Venmo said:

"My brother, it all about time oh!. I am computer literate. I work as statistician but getting time to help them in the house is a big problem. So, I leave them to explore on their own. Their father is not staying with us. He normally comes home occasionally. Just imagine, I have to get up at 4 am prepare food for the kids, bath the young ones, drive them to school, before I also get to office for. The only weekend is used for washing and other social activities, hmmmm. Women we wish but …. So, if the children indicate that the men support them, I perfectly agree, no problem"

From the findings conclusion was made that parents gender influence children usage of ICT in the home. This finding concurred with UNCTAD (2011) early results that revealed that men are slightly been supportive to children in practical activities than the women. Perhaps, the difference in the

gender support is not nature but as a result of work, income, knowledge they have

Impact of parent educational background on children learning of ICT at home

Everybody would testify that education is very essential in human life for acquisition of knowledge and skills. Education may come in formal or informal. In this sense, acquisition of ICT literacy is incorporated in people life either through formal or informal and seldom rely on only one methods of learning. It is has been said elsewhere, the ability to keep up with application-specific knowledge and maintaining a growing set of generic skills are necessary to participate in the digital world. To determine the impact of parents' education on the children access and usage of ICT in the home, children were asked to mention their parent education background, their knowledge, interest, and attitudes towards ICT tools. At the end of the interview, the children were able to describe 17 parents' educational background. Out of the total, tow (2) had no formal education background, five (5) completed JHS/Middle school, three (3) completed Senior high school and seven (7) had completed tertiary education.

Studies shows that the brain develops at the early years but as a consequence, it is during this period that children are sensitive to external stimuli (OECD, 2016). It is also known that early years are period of cognitive, linguistic emotional, social and motor development. It is also known that for aging, learning abilities slow down and much time in needed to learn new skills. Right from literature review, it also appears that having access to ICT tools has

entangled with a lot of factors especially in the developing countries where poverty rate is high.

To determine whether parental age influence the children access and usage of ICT at home, it appears that age of the parent do not influence the children access and usage of the ICT. The parents of the children. Literature review that, there are some concerns that older workers have fewer ICT skills which they literally term themselves 'BBC' (born before Computer). Possibly, it may be inferred to say that there is 'generation gap' with relation to the exposure to computers and other ICTs skills. As a result, one would be tempted to say that younger people age 18 to 35 might have more interest in computer. However, OECD (2015) indicates that there is no firm evidence of such competitive advantage of ICT attitudes and interest. For this study children were asked to mention their parents' age, their interest in ICT and knowledge of ICT and also how they are eager to assist them to learn ICT. Table 4 show the children responses

Table 4: Parents' educational background

Participant	Sex	Age	Education level	Knowledge	Interest	support
Cindy	Mother	36	Senior High	High	High	Little
Portia	Father	37	No formal	Low	High	Little
	Father	42	Senior high	High	High	Little
Nhyria	Mother	38	Senior High	Low	High	Little
	Father	45	Tertiary	High	High	Little
Rahman	Mother	38	Tertiary	High	High	High
	Father	50	JHS/Middle Sch	Low	High	Little
Sammy	Mother	34	Tertiary	High	High	Little
	Father	40	Tertiary	High	High	High

Table 4:Cont.

Venesa	Mother	53	Tertiary	High	High	Little
	Mother	36	No formal	Low	High	Little
Olivia	Father	38	JHS/Middle Sch	High	Low	Little
	Mother	54	JHS/Middle Sch	Low	High	Little
Henry	Father	62	JHS/Middle Sch	High	Low	Little
Joeberta	Mother	47	JHS/Middle Sch	Low	High	Little
	Father	48	Tertiary	High	High	Little
Augustina	Father	46	Senior High	Low	Low	Little

(Source: Field data. 2022).

From the interview findings, out of the17 parents that the children described them, 10 of them were of high education background while 7 parents were low educational background. For the 7 parents of low educational background, 4 of them were having low knowledge. For the 10 high educated parents three (3) were also with low knowledge of ICT. Interestingly, all the children described their parents with high interest using ICT in this modern world. However, all the children noted that they offer little support and assistance to them in learning ICTs.

All the parents interviewed also indicated their high interest for ICTs because of its benefits to human life and to the society. They also admitted to the fact that in spite of their interest, they do not provide much support in terms of provision of ICT tools in the home and also assisting them to use as result of work. For instance, some of the parents gave these remarks.

Joepa said:

"Master it is true that ICT tools are very important us, especially the children, but the work we do. In some cases, the work we does not allow us to help our children. For me I have to leave the house at 4 am and come back in the evening. My wife also goes to work. So, the children themselves learn them. Sometimes, I wonder how they get to know how to operate the phones, television. etc. It is a problem. I wish I can teach my children."

Adding to this, another parent also revealed that lack of knowledge to assist the children.

"Hmmm. Brother, I wish I have knowledge to teach the kids in the house. Sometime they bring home work but I don't know anything about it. I am BBC man (born before computer). But sometimes the elder brother teaches her. I don't also have money to buy the things they need. It is very expensive" (Cinfa).

It was also revealed that the ICT tools are very expensive, and children do not take care of it (captured from AugFa statement). However, a parent indicated that he has been working had for his children to be abreast with the technological world. Therefore, he tries to buy toys, computer games and computer for his children to be used in the house. This is how his statement was captured.

Mr. Samfasaid:

"In fact, I really know the important of ICT in this modern world. Let me show you, they have their computer laptops, they

are my old one (Palte …). I make sure I buy them toys; I am an IT guy I don't joke with it. The only thing is that, I don't normally get time to teach them in the house. But they are good. I sometimes give my phones to the little ones to play games".

From the findings, conclusion was made that parental educational background can influence children access and usage of ICT only when parents have time to assist the children in learning.

The Geolocation challenges children face in using ICT at home

The research question 5: What geolocation challenges do children face in using ICT at home? The aim of this research question was to find out the challenges children face in using ICT at home. As was defined, the challenges under this context of study implies all other factors that become obstacle or making it difficult for the child to get access, use or learn any ICT in the home Ghavifekr, Thanusha, Logeswary & Annreerha, 2018). From the interview, it was found out that lack of time to assist the children, lack or inadequate knowledge, negative perception, children's own attitudes to ICT tools, high cost of ICTs, earlier findings have revealed high cost of ICTs tools, limited accessibility and network connection, negative perceptions, limited time, lack of training on the part of the parents and household people.

i. High cost of ICT tools

Although, there has been a general concern about how to provide enough ICT tools for children to explore and get access in the house. Most of the participants expressed that the ICT tools are very expensive for parents to buy.

On the part of the children, 7 out of the10 revealed that most of the tools are expensive. These excerpts were captured.

Nhyria said:

> *"We have the television in the house, but I don't have the computer, the internet and combo games. They are very expensive so my mother will not get money to buy"*

Adding to that Portia, Henry and Augustina, interestingly made the same statement that *"computer is very expensive to buy".*

It was also affirmed by most parents that the tools are costly which should not be aimed at when the family is struggling for basic needs in the house. For instance Mr.Henfa gave this remarks.

> *"We are aware of the benefits of the ICT tools to the children. But they are very expensive, the economy is hard that we are finding it difficult to get food for the children. How can you think about phone for the child or computer and even buying units? My brother, think about that…."*

In conversation with Cinmo, she did not hesitate to state that say that

> *"As a single mother of five children, how can I think about those materials. You know they are not easy to get in Ghana. The cost of computer and phones here look at the cost of buying unit for internet, electricity bills".*

In fact, this finding put Soma, Nantomah and Adusei (2021) right by revealing that that ICT tools are very costly. It seems that looking at the benefits of ICT tools it should have been a necessity in this modern day but poverty and economic hardship has now made it to become luxury commodities.

ii. Lack or inadequate knowledge to assist children learn ICT in the home

Having the skills and knowledge to impact is very significant in the coaching principle. It appears from the interview that most parent would have wish to assist the children in learning or using the ICT tools but they lack or not having enough knowledge and skills to do that. For instance, this is what Augmo said.

> *"The problem is myself I don't have much knowledge to assist my child. She sometime brings home work to the house but I can help. Sometime she even teaches me how to get something from the phones. She normaly tease me".*

This finding confirmed the earlier finding from Soma, Nantomah and Adusei (2021) that illiteracy rate on the part of most parents prevent them from providing the needed assistance. It also confirmed Natia and Alhassan (2015) who claimed that even most teachers do not have enough knowledge to teach children ICT.

It has also become a challenge for parents to support children in using ICT due to high level of computer illiteracy rate in most parents of the developing countries, especially in Ghana (Soma, Nantomah & Adusei, 2021). It is not surprising that Natia and Alhassan in 2015 found out that even many teachers in Ghana have never used a computer or projector before. This implies that some parents could have wished but for lack of knowledge to operate prevents them from letting their children get access to them. Albirini (2006) refer this scenario to lack of training to have opportunity to use ICT in the house.

iii. Limited accessibility and network connection

Another major challenge which all the children lamented on is the limited access to ICT tools in the house and network connectivity problem. Most

children complained that, parents deny them from the use their phones knowing that they can operate it. They are warned of watching television, and no internet connection in the house. The following excerpts captured accessibility challenges.

> *"Sir, the challenges, we don't get the ICT tools, parents do not allow us to use their phones even for homework. They will shout at you. The day that you will be allowed to use it no internet. We don't have money to buy units. My mother usually say that I will behave badly when I personally own a phone"* (Said Olivia).

This finding agrees with Korte and Husing (2007) previous findings that young children are denied from getting access to broadband internet, computer and television. Adding to Olivia's challenges, Joeberta also revealed that getting time to use the ICT tools was a problem especially performing so many house duties that you cannot get enough time to learn. The findings confirm what Sicilia (2005) identified that children do not have access to ICT tools in the house.

iv. Negative perceptions

Another challenging issue was found to be negative perception and stigmatization attached to the use of ICT. In spite of the benefits revealed by many scholars, people still have negative perception about the use of ICT. This current finding revealed that if children are allowed use mobile phones, they misuse it for sexual activities by watching pornographic videos, involving in unnecessary calls in the night, becoming addicted to social media. For instance, Mad. Pormo said this.

Mad Pormo said:

> *"The social media is killing the children these days, the 'tic tok', and whatsapp. The internet is spoiling the children. They use it to do so many things which are unpleasant. The boys practice 'sakawa."*

This statement affirmed Soma, Nantomah and Adusei (2012) that some people have the perception that ICT promote social vices and unpleasant activities among children. Again, some parents interviewed in this study perceived that those technological tools, especially mobile phones, computers, DVD players lead children into immoral behaviours. Truly, confirming Rodriguez-Gomez, Castro and Meneses (2018) is what was said by PorMo that, there is also perception that ICT prohibit children from making critical thinking and be creative, therefore, making children lose their thinking routines and problem-solving skills (Iskrenovic-Momcilovic, 2018). From this finding, it is strongly affirmed that some parents still look beyond the benefits of ICT to children and still see it as a problem to the society.

Truly, those parents perhaps have every reason to say that because of the evidence they have experience. To confirm this my attention captured group of children secretly playing games for gambling (Figure 4) at a game centre.

Figure 4: Children at game centre

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Overview

This chapter focuses on the summary, conclusion and recommendation as well as suggestions for further study.

Summary of the Findings

Information and Communication Technology is very important in all endeavors of human life in this modern society. Its benefits have been manifested in different areas including commerce on business model, market structure, labour market, education, health, workplace, private life and society as a whole. Again, it is expanding people's forms of interaction, collaboration, activity and making learning possible for children to reach their goals. Therefore, this study explores the children's belief and self-efficacy of computer usage along the coast of Ghana. A case study of La Dadekotopon Municipality in the Greater Accra Region.

Relevant literatures discussed based on the necessary theories were grounded on Bandura self-efficacy theory supported by three learning theories such as behavioral theory, cognitive learning theory and constructivist learning theory were discussion under this study. Based on the research objectives Ethnological study which fall under qualitative research approach was carried out. A sample size of 20 participants which consisted of 10 children and 10 parents were involved in this study. The main instruments used were interview and observation.

Key Findings

From the interview the following findings were revealed:

1. It was revealed that children have positive beliefs about learning ICT. They have the belief that ICT is very beneficial to their daily life activities as well as their future career. The children were much more self-confidence of learning ICTs in the home.
2. The findings revealed that most children lack access to ICT tools in the home and the most common accessible ICT tools to the children were radio, television, tape recorder and computer while complex ICT tools that demand software applications internet, combo games, video recorder, writing software were not common to them.
3. It was also revealed that children mostly access and use ICT tools more with their friends or learn it alone.
4. The findings also indicated that parents' gender influence children's usage of ICT in the home and in this study, men assisted children in learning ICT at home very often than women. However, it was revealed that parent's educational background can influence children access and usage of ICT only when parents have time to assist the children in learning.
5. With regard to challenges children face in accessing and using ICT tools, it was revealed that high cost of ICTs tools, limited accessibility, network connection, negative perceptions, limited time, lack or inadequate knowledge and skills were the most challenging factors.

Conclusion

On the basis of the key findings, it is cocluded that there is still a lot of gaps related to children access and usage of ICT at home and the availability of ICT in worldwide. It is also established from the findings that children living along the coast struggle to get access to ICT at home. In this perspective, children self-efficacy of ICTs which pioneer literacy digitally and also needed for children to obtain high-quality education and succeed in school is been neglected. This current study filled a very significant gap within the field of ICT research by exploring the children self-efficacy in ICT among the children living along the coast of Ghana. It has revealed the state of parental perception, attitudes and interest about children usage of ICT at home. The knowledge so far brought out can be used by educators, social welfare departments, NGOs and any other agencies that provide family support.

The important role of teachers to provide guidance to assist to develop strategies for parents to find the right balance for immoral behaviours of children as they engage in interactive learning of ICT to bring the positive consequences of the child learning of ICT. Again, parent's negative perception regarding ICT use at home could be reduced to the barest minimum. This will also boost the illiterate parent's confidences in ICT. It is however important that the benefit of children using ICT at home be discussed always in the public domain.

Recommendations

The study aimed at exploring the children's belief and self-efficacy of computer usage along the coast of Ghana. A case study of La Dadekotopon Municipality in the Greater Accra Region. Following the research objectives and the findings, the following recommendations have been made to the parents and all the stakeholders of children in education and for future research.

1. It was revealed that children have positive beliefs about learning ICT. They have the belief that ICT is very beneficial to their daily life activities as well as their future career which give them more self-confidence of learning ICTs in the home. Therefore, it is recommended that to promote children self-confidence regarding recreational used of ICT, teachers should foster the children self-confidence by using the ICT tools in the school.
2. The findings revealed that most children do not have access to ICT tools in the home. It is recommended that community ICT resources centres should be established for cluster communities so that the children can have access to other ICT tools at centres that are not common and also expensive to acquire. The Government, the Ghana Education Service, District Assembly parents and Non-Governmental Organisations should provide these centres for easy learning.
3. Since it was revealed that the parents gender influence children usage of ICT in the home with men assisting the children more than the women in the home. Again, it was revealed that the parental educational background can influence children access and usage of ICT only when parents have time to assist the children in learning, more assistance should be provided to

children. Again, more collaborative relationship between parents and teachers through sharing information and technology use at home.

4. With regard to challenges children face in accessing and using ICT, it is recommended that stakeholders such as the Government, the Ghana Education Service and District Assembly should have more discussion with parents on the potential use of ICT at home as well the dangers for children should be frequently provided to remove all misconceptions and any negative stigma parents have about ICT. Again, it is also prudent for NGOs to organise community workshops on ICT usage at home for parents to be abreast with the basic skills and knowledge.

Suggestion for Further Studies

Based on the scope of this study which focused on children living along the coast in Ghana and the case study of La Dadekotopon Municipality in the Greater Accra Region, it suggested that other studies should be conducted in the rural areas of the country to obtain a better picture of the issues in the country and also for appropriate generalization.

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APPENDIXES

APPENDIX A

UNIVERSITY OF CAPE COAST

Department of Mathematics and Science Education of the College of Distance Education

INTERVIEW GUIDE FOR CHILDREN

Demographic information of participants

Name:……

Age:……

Class:……

Number of siblings: 2 and below [ ] 3-4 [ ] 5 and above [ ]

Whom do you stay with? Father [ ] Mother [ ] Both parents [ ] Caregiver **[ ]**

Type of school attending: Private [ ] Public [ ]

Explain the concept of ICT to the child before

1. Children belief and self-efficacy of using ICT at home
   i. Have you used any ICT tool before in the house?
   ii. Do you have confidence to use any ICT tool?
   iii. Do you wish to use ICT tools for example phone, Television, radio in the house?
   iv. Will ICT tools such as computer, television, radio help you in your future learning?
   v. Will it be useful in your future life?
   vi. Without ICT tools will your life be affected in future?
   vii. Is there any importance of ICT to your life and the society?
   viii. Do you have fear in using ICT tools?

2. Children's access and usage of ICT at home

TV

Toys-robots

DVD player

Mus. keyboard

CD/tape player and discs

Handheld electric. games

Game console

Educ. software

Digital camera

Ms Office

Computer

Printer

Video camera

Internet

Radio

Mobile phone

Watches DVDs or videos

Uses drawing software

Plays computer games

Looks at digital photos

Uses writing software

Visits websites

Uses e-mail

i. Which of these have you seen or being aware of?

ii. Which have you used it before?

iii. How did you use it (alone, needs help, with siblings, with adult, never

3. Impact of gender, age, parents' educational background

i. Whom do you use ICT tools with (male or female)?

ii. At what age did you start using any ICT tool yourself?

iii. How old are those that you use ICT with?

16years and below [ ] 17-25 years [ ] 26 years and above

iv. What is your parent's educational background?

Uneducated [ ] Primary [ ] SHS [ ] University [ ]

4. To find out challenges children face in using ICT at home

i. What challenges do you face in using ICT in the home?

APPENDIX B

UNIVERSITY OF CAPE COAST

Department of Mathematics and Science Education of the College of Distance Education

INTERVIEW GUIDE FOR PARENTS

Demographic information of participants

Name:……...……

Age:……..……

Education:……..……..

Number of children:……..

Occupation:……

Interview guide for Parents

1. Do you believe children can use ICT in the house?
2. Do you believe that children have confidence in using ICT in the house?
3. Have you seen your child using ICT tools in the house?
4. What ICT tools do you have in the house and which one do you allow your child to have access and use it in the house?
5. Among the male and female children in the house whom do you normally see using ICT tools often?
6. At what age do you allow your children to have access to ICT tools in the house?
7. What are challenges that children face in using ICT at home?