Education cannot be Delayed: Utilization of Mobile Phones in Education in Emergencies

Servious Mbiza

Abstract— **When disaster strikes, education is, in most cases, not included as part of the first response. Education must wait until life comes to normal. This, however, is a very costly miscalculation because during emergencies the affected persons, young or old, have a lot of questions which need to be answered immediately. The affected persons must quickly learn to reconcile their actions with the prevailing situation on the ground. This often requires finding new meanings to life. After encountering such traumatic events people can easily be made to believe those who are first to come with explanations. It is during this time that children are brain washed or get indoctrinated by those who reach them first. Since mobile phones are ubiquitous and are becoming more accessible by each coming day it is important to assess if they can be a medium for teaching and learning during emergencies. This study assesses the possibility of making education be part of the first response when disaster strikes. A study on accessibility of mobile phones to children and what they can do with them was done. A questionnaire was given to parents to indicate how their children were using mobile phones. The data provided was used to assess the proficiency of mobile use by children. The study established that children were able to navigate through mobile gadgets to pick applications of their choice. The study concluded that mobile phones were suitable tools to use as a medium of instruction during emergencies, especially in poor and remote communities.**

Index Terms — **Education in Emergencies, Mobile Education, Mobile Use by Children, Learning During Disasters, Utilization of Mobiles**

I. INTRODUCTION

When disaster strikes, there is both physical and emotional destruction in communities leaving children out of school and vulnerable to further calamities. Infrastructure including schools and homes are destroyed leaving children, parents, and teachers in disarray. Most often it will take time to address the damage and return to normal life. This means children will miss education at the time they need it most. After being exposed to a crisis, children have crucial questions that must be answered immediately. Postponement of answers to these questions causes emotional stress that may lead to permanent stress disorders that can haunt them for life. It should be noted that, the child's brain is fragile, and any teaching coming in first, during or after an emergency, is likely to take root and difficult to undo. Therefore, it is critical that the affected children are reached as quickly as possible with explanations and answers pertaining to their precarious situation.

Srvious Mbiza, Faculty of Technology, Zimbabwe Open University/ College/ Organization Name, Harare, Zimbabwe
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The young generation including students are increasingly becoming dependent on mobile devices for communication and social networking [1]. These mobile gadgets have a place in young people's hearts [2]. Besides being small, less expensive, and portable smart phones have many features such as recording audio and video, high pixel camera, calculators, GPS facility and texting messages [3]. The adoption of online learning in a situation of emergency represents a need, and it has stimulated experts, policymakers, citizens, teachers, and learners to search for new solutions [4]. To assure the continuity of learning in emergencies it is necessary to find solutions whether they be hi-tech, low-tech or no-tech. According to [4], the COVID-19 pandemic can be an opportunity and an exercise for emergency remote teaching which can be used to develop a coherent online education strategy for any other emergencies or natural disasters that can potentially happen in the future. It is therefore crucial for every community to access their capabilities to utilize mobile technology for teaching and learning when disaster strikes so that education of children is integrated in the first response when an emergency occurs. Proper and progressive education must reach them first before other dark ideologies and teachings occupy that space. There seems to be little research on the proficiency of children in using mobile gadgets in developing countries. This leaves educators, policy makers and decision makers unsure on how far they can utilize mobile technology as a medium of instruction when disaster strikes. This study looks at the proficiency of children in Zimbabwe in using mobile phones.

The research seeks to answer the following research questions: How are children using mobile phones in their homes? How can children be reached through mobiles during emergencies? How can mobile phones be utilized as learning tools during emergencies? The answers to these questions were established by looking at the capabilities of children in using the phones. A simple deduction was made. If children are fluent in using the mobiles during normal times, they would find them even more useful during emergencies. If educators can reach children in emergencies through their mobiles, then learning must continue during emergencies.

II. RELATED LITERATURE REVIEW

Education is viewed as a central pillar of humanitarian response, alongside the pillars of nourishment, shelter, and health services [5]. This shows that education should be part of any relief intervention. Education provides students, their families, and communities opportunities to begin the trauma healing process, and to learn the skills and values needed for a more peaceful future [6]. It is through education that victims

learn more about the crisis and how they can move on. Reference [6] defines educational emergency as a crisis created by conflicts or disasters which have destabilized, disorganized, or destroyed the education system. This could mean physical destruction of the school infrastructure or materials such as books and equipment.

Several studies have been done on the advantages and drawbacks of online learning. In online environments learning should be viewed as a social and cognitive process [7]. These days mobile phones are used to access social media. Mobile users are experts in information sharing since social media is dominated by exchanging information. Reference {8} noted that school-provided IT systems are frequently too expensive, cumbersome, and quickly go out of date. IT systems in schools are also guarded, and their use is guided by laid down rules. This stifles creativity among learners. They suggest that people turn to personal devices which should be integrated into the school system [8]. Furthermore, gamification of education will encourage children's engagement and curiosity [7]. Games played on the mobile phone can be used as therapy for children suffering from stress caused by a traumatic event. Since mobile phones are powerful, portable and ubiquitous gadgets, they appear to be the best fit media for education in emergencies.

Since smartphones have become an increasingly pervasive part of our lives, they have also become increasingly capable of supplementing, or even supplanting, various mental functions [9]. Available literature shows that mobile phones are becoming part of everyday life for children in many ways. Integration of mobile phones seem to fit well with the Four Pillars of Learning as explained in [10]. Reference [10] considers active minds-on learning, engagement with the learning process, meaningful learning and social interaction as the pillars that enable meaningful learning to occur. The mobile phone can achieve this, depending on how the learner and the teacher use it. The mobile gadgets support the manipulative form of learning as given by [11] and [12]. In emergency settings, learning outcomes should not be considered the most important objective [13]. This suggests that even if the technology used does not produce the best results, it is likely going to achieve something valuable to the learner. Educational Technology (EDTech) has an allure that is worth considering for those working in education in emergency settings [13]. Young persons are attracted to mobile phones and using them as gadgets for learning will be ease to implement.

Mobile Gadgets boosts 21st Century Skills. Use of mobile technology boosts 21st Century learning skills such as problem solving, collaboration, analysis, evaluation, and synthesis [13]. Time will come when learners will be expected to find, select, interpret, analyse, and produce information that is relevant to them [14]. New technology actively promotes and complements students' 21st century learning skills [15]. So the use of technology in teaching and learnings seem to be unavoidable. Internet enabled mobile gadgets allow learners in conflict settings to interrogate the validity of information they encounter against the politics at the time of writing [13].

Although the primary use of a mobile phones is communication through voice. The learner can use voice calls to reach to friends, family members or external sources of assistance. Voice communication eliminates the need for typing while text messaging eliminates the issue of noise. Such capabilities, though not important in normal situations, can make a difference between death and life in emergencies. There are times in emergencies where there is no time to type. There are also times when voice communication can expose your location to your adversaries nearby.

Most mobile phones can easily handle multimedia these days. Capabilities of mobile phones to handle text, voice, and video can be explored for use in emergencies. Mobiles are a means to chronicle events being witnessed and/or experienced personally, and they can be used to disseminate information and educate and inform the public and emergency services [16]. Besides, mobile phones can be used to track movements or location of individuals who are using them by identifying the locations where the mobile was used through the mobile service provider [16]. This kind of information is useful in emergencies when rescuers and other interventions must reach the affected.

III. METHODOLOGY

The research target children. In this context children refers to young persons under the age of 18 years. This group of people is usually under the guidance of parents or other guardians. They are still depended on others for their livelihood. They are still in primary or secondary education. Parents usually make decisions on whether children have access to mobile phones and are quite interested in knowing what children do on the mobile phones. A questionnaire was distributed among parents to indicate how their children use mobile phones.

A sample of 20 parents was drawn from a residence's Whatsup group that consisted of 200 households. A message was sent in the main group asking those willing to participate in the research to join a smaller group through an invite link. Participates were added on a first come first served basis, When the sample number was achieved, a message was sent to the main group notifying them that the sample size has been reached. Only one parent or guardian from a family was supposed to participate to avoid collecting data on the same children. Participants were given explanations on the purpose of the research. A questionnaire was distributed among the participants to collect data about their children. Each parent was supposed to give the number of children s/he has. The ages of the children, and what they do on the phone was solicited. The age of students was divided into five age groups. The following age groups were considered: 5-year to 6-year-old, 7 to 9 years old, 10 to 13 years old, 14 to 15 years old and 16 to 18 years old. These represent groups who have different learning styles. The 5-6 years were infants who were supposed to be in pre-school. The 7-9 years age group was supposed to be in lower primary education and the ages 10-13 were supposed to be in upper primary. The age groups 14-17 years and 18-19 years were at secondary and advanced level education respectively. Each parent was asked to indicate the age group and gender of his/her children. For each child they were supposed to show if the child was able to perform the

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following on a smart phone: make/receive calls, text basic SMS/social media, take photographs, share photographs, play educational games, open audio/video files, record/share audio/video files, download/upload digital materials.

IV. DATA PRESENTATION AND ANALYSIS

The 20 parents who participated in the research provided data for 54 children.

Table 1: Number of children by sex

Girls	Boys
34	30

Data for 54 children were provided giving approximately 3 children per parent. This is consistent with the fertility rate in the country, which was pegged at 3.53 in 2019 [17].
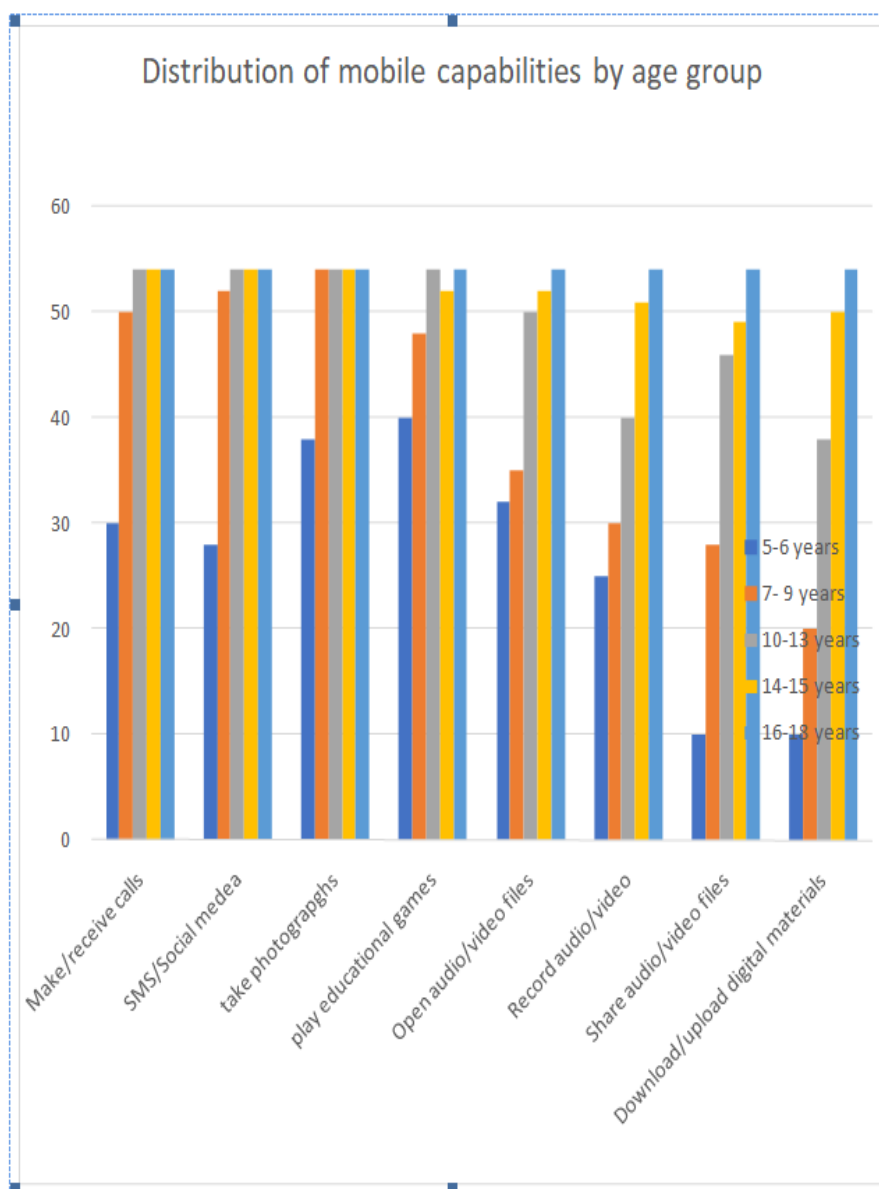
5-6 years age group

Fig. 1: Mobile use capabilities by age group

The graph shows that most children could use the phone in many ways. The majority could use the phone for basic tasks like making and receiving calls as well as texting messages. These basic skills on mobiles are quite very important in emergencies. They allow those in a disaster to reach and be reached by those outside the danger zone. Most of the children in all the age groups are also able to take photographs, play educational games and open audio and

video files. These are the paramount tools for e-learning. Most of those children in the lower age groups have no skills in sharing audios and videos. The same age groups did not have web skills. This could be related to the fact that parents do not like their children sharing digital materials such as audios, video and other digital content fearing that they may end up receiving inappropriate material or falling prey to unscrupulous netzens.

Make/receive calls

Fig 2: Capability to make/receive calls by age-group

While less than half of the 5-6 age-group can't make or receive calls on mobiles almost all other age-groups can do that. The reason why some children in the 5-6 age-group can't make or receive calls could be that parents do not give them a chance to do so.
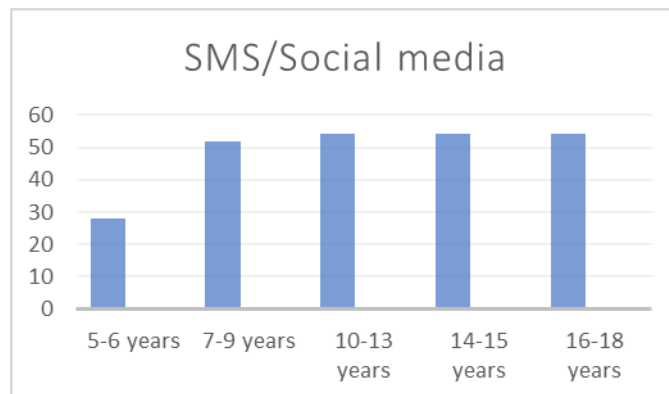
SMS/Social media

Fig 3: Capability to use SMS and social media

Only the 5-6 age-group have challenges in typing simple text messages or interact by typing on social media. This seems to suggest the inherent challenge in children of that age-group in formulating written words and their impatience in doing so.

applications on mobiles mainly use icons. Kids are quick to read graphic images.

Table II: Children's mobile capabilities by age-group

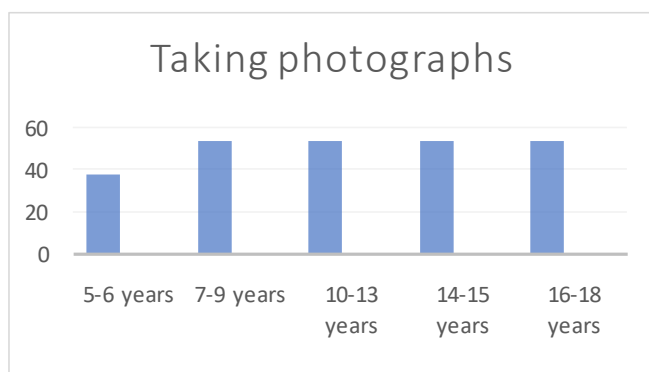| Mobile capabilities	5-6 years	7-9 years	10-13 years	12-15 years	16-18 years
Make or receive calls	30	50	64	54	54
Simple SMS & social media	28	52	54	54	54
Take photographs	38	54	54	54	54
Play educational games	40	48	54	52	54
Open audio & video	32	35	50	52	54
Record audio & video	25	30	40	51	54
Share audio & video	10	28	46	49	54

Fig 4: Capability to take photographs
Almost all age-groups are comfortable in taking photographs. Even the 5-6 age-group can take photos despite the fact that they struggle to type messages. This could be the reason that interaction with camera

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Download & upload digital materials	10	20	38	50	54

The table summarizes the children's capabilities in using mobile phones. Children can make calls, take photographs, record both audio and video. From 7 years old children most of them can also share these materials with others. From 10 years old, they can download and upload on the World Wide Web. The children's capabilities are not surprising since the age groups being studied were born during the digital age.

V. FINDINGS

The study reveals that most children can use mobile phones in many ways. The way children use mobile phones allowed me to address the research questions in this study.

How are children using mobile phones in their homes?
Most children are fluent when it comes to the use of mobiles. This may be attributed to the fact that mobile phones have become a way of life. Since mobile coverage has grown in most regions and mobile battery-life can last for several hours, it means that mobiles can be deployed as a medium of learning in situations where educators and learners cannot meet.

How can children be reached through mobiles during emergencies?
Children can be reached through voice calls, text messages, and social media. They can receive and share content from simple files to multimedia using mobiles. Teenagers can access the World Wide Web. There are many choices when it comes to interaction with children during emergencies. Children in emergencies can initiate communication with individuals outside the danger zone by choosing the safest method, for instance, SMS when its not safe to make voice calls or voce calls when typing is not possible because of the urgence of the situation.

How can mobile phones be utilized as learning tools during emergencies?
The capabilities of children in manipulating the mobile phones shows the potential of mobile phone use in teaching and learning. Educators can reach children through mobiles. Children can reach educators through mobiles. Children can reach one another through mobiles Since learners can share materials using mobiles, this means that student to student interactions can take place. Student to student interactions is considered critical in education. The fact that mobiles can easily be used during daylight or during the night means that teaching and learning can take place anytime anywhere. Educators can be drawn from all over the world, thus allowing specialists to volunteer or be hired from anywhere in the world.

VI. CONCLUSION

The mobile revolution and the speed with which it has reached even the remotest of places, must challenge the status quo in how educational is offered even in normal situations. The fact that a child, 5 years old, can use a mobile phone relatively well means that mobile phones can be deployed as a medium of learning in all levels of education. In emergencies, the mobile phone can be used to reach the child, even as the disaster occurs. This allows educators to start giving lifesaving lessons or intervene in many different ways.

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Author profile

Servious Mbiza

1) Master of Commerce Degree [Information Systems], Great Zimbabwe University,
2) Bachelor of Technology (Honors) Degree in Information Technology – Harare Institute of Technology (2015)
3) Bachelor of Education Degree (History) -Midlands State University (2006)

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