The Potential Role of ICT Technology in Education in Sub-Saharan Africa

Introduction

Over the past thirty years, the rate of global extreme poverty has been on a decline. In every region throughout the world, the number of people living in conditions of extreme poverty has seen a dramatic decline–except in sub-Saharan Africa. Sub-Saharan Africa is the only region in the world that has seen a rapid increase in the number of people living in extreme poverty (World Bank 2018). Four out of every ten people, totaling to 413 million people, live on less than $1.90 a day (ibid.). The vicious expansion of poverty is further aggravated by the large population growth (2.7%) that sub-Saharan Africa is experiencing (World Bank 2019). It is estimated that by 2030, 9 out of 10 children in the region will live in extreme poverty, therefore rapid population growth is correlating to a large expansion in the number of people being born to conditions of extreme hunger (UNICEF 2016). Without outside support, the number of people being trapped in this cycle of extreme poverty will continue to grow.

Ending Poverty is Possible with Education

Education is the key to ending global poverty, as “education offers children a ladder out of poverty and a path to a promising future” (UNICEF 2019). Studies show that “on average, each additional year of education a child receives increases his or her adult earnings by about 10 per cent. And for each additional year of schooling completed, on average, by young adults in a country, that country’s poverty rates fall by 9 per cent” (UNICEF 2016). Consequently, it is clear that the expansion of education is essential for the eradication of poverty.

Importance of ICT Technology for Education in Sub-Saharan Africa

In today’s technologically-driven world, information and communication technologies (ICTs) are essential to education. They provide easy access to limitless

amounts of information, which can empower people to develop innovative ideas and solutions for the betterment of numerous communities (Xu 2017). The intrinsic tie between technology and education highlights the desperate need for ICT technology in sub-Saharan Africa, where accessing information instantly is virtually impossible– a serious hindrance to the expansion of education (Partinos 2016). Technology correlates with education as an increased exposure to educational technology enhances the effectiveness of learning. According to an early study performed in 2007 on the use of technology in education, it was concluded that there are, "greater efficiencies and effectiveness in learning, increased individual support and opportunities for personal development, better methods of collaborating and communicating and greater exposure to technology" (Eschenbrenner and Nah 2007). Another study conducted within the past year concluded that using educational technology is an advantage as it allows students to become "self-learners" and grasp needed skills even if they are put at a disadvantage due to lackluster educational systems within their societies (Lakshminarayanan and Poulakidas 2019). Overall, these two studies from different decades present identical results that support the benefits of educational technology. In order to create a successful platform for education, it is clear that ICT technologies must be considered essential tools for education.

The Role of Education in the Economic Development of Africa

Supporting the education of children in Africa is important as education directly connects to socioeconomic progress. Both social and economic developments within a country are enhanced through education. Without education, advancements to the economy are minimal or nonexistent. Considering the substantial amount of research confirming the direct positive correlation between education and income, it is imperative that we collectively strive to provide quality education for the rapidly increasing population in Africa. Therefore, organizations such as UNICEF and Embrace Relief take actions towards providing a quality education for children in Africa through various ways including donating school supplies and other necessities. For example, Embrace

Relief's initiative with Endless Solutions and Endless Network entails providing small electronic devices with downloaded educational applications. These educational applications do not require Internet access and provide the children with an opportunity to effectively learn an array of subjects. These relief actions demonstrate the active pursuit towards a better educated and more prosperous continent. Africa has a severe crisis in regards to a lack of quality education for children, and it is important to work towards education for all children. More education has been proven to lower the poverty rate and investing time and effort in Africa to ensure quality education will provide the necessary tools to achieve social and economic progress (UNICEF 2019).

Sustainable Development and Education

Sustainable development cannot be achieved without advancing education, which is necessary to help build long lasting solutions. This connection makes education a top priority for the progression of sustainable development. UNESCO argues that "aiming to improve access to quality education on sustainable development at all levels and in all social contexts, to transform society by reorienting education and help people develop knowledge, skills, values and behaviours needed for sustainable development," is a vital component to achieving sustainable development (UNESCO 2019). Embrace Relief's initiative echoes this sentiment. By giving schools the tools they need to better educate students, these students will be able to empower not only themselves, but also their entire community.

Importance of ICT Technology

In alignment with the UN's 17 Sustainable Development Goals, Embrace Relief makes increased access to education a top priority. The organization plans to increase access to education by providing computers and other ICTs to schools in sub-Saharan Africa. Computers provide access to unlimited amounts of previously inaccessible

information. By introducing computers to sub-Saharan Africa, students will have the ability to broaden their knowledge and their economic opportunities. Electronic devices allow children to learn in many different situations since having downloaded educational computer software allows for a child to learn even if there is no access to a teacher or an internet connection. A computer offers more opportunities to learn as demonstrated by a case study viewed. According to a World Bank case study in Africa, the use of ICT technology helps both the economies and education sectors (Souter 2014). The use of ICT technology supports improvements within the education system which leads to a better quality of education.

Supplying ICT technology to children positively affects Africa as a whole as these children are becoming better educated. This also helps boost business ventures and the economy as a whole as these children will be better equipped to enter the formal economy. Providing ICT technology will result in improved educational outcomes and ultimately leads to a better society with a more educated population. The impact of this technology is potentially significant considering that better education can boost many aspects of life in Africa, including agriculture, economic stability, finance, health, public policy and the population at large. ICT technology is extremely beneficial and can be used to improve societies through increased quality education which will result in better quality of life throughout the continent (Souter 2014). Moreover, computers will also provide a solution to the shortage of teachers in sub-Saharan Africa, one cause of low-levels of education (Watt 2016). According to a UNESCO report, over 93 countries are lacking well-qualified teachers. In particular, "sub-Saharan Africa faces the greatest teacher shortage, accounting for two-thirds of the new teachers needed by 2030. The problem is exacerbated by a steadily growing school-age population” (UNESCO 2018). These problems are emphasized by the Director-General of UNESCO, Irina Bokova, who states, “A quality universal primary education will remain a distant dream for millions of children living in countries without enough trained teachers in classrooms. Teachers are the core of any education system. Hiring and training new and already established teachers is fundamental to protecting children’s ability to learn in

school'" (UNESCO 2018). However, many of these countries facing a shortage of teachers, especially in sub-Saharan Africa, lack the financial resources to invest in education, which often results in recruiting under-qualified candidates to become teachers. Providing ICT technology to students in sub-Saharan Africa will help remedy the inadequate educational standards caused by the lack of qualified teachers. Endless OS computer technology will provide students with quality materials and the ability to study on their own. By increasing the availability of educational resources, more students will be able to receive a quality education (Partinos 2016).

Computer Specifications:

Our project will provide 324 computers to impoverished schools in Tanzania and Uganda. Endless Solutions will supply the computers, which are designed to combat the limitations of education in developing countries. These computers do not need the internet to work and have the ability to be updated remotely. They are cost-effective and power efficient. Most importantly, they are simple to use. Each computer will have educational programs pre-installed. These programs cover a wide variety of school subjects including math, science, history, language, and coding. Beyond that, these computers will also be equipped with programs centered on life skills, such as farming, personal finance management, and personal hygiene skills. Together, these computers will expand the accessibility of education in sub-Saharan Africa, which in turn will enable these students to advance their personal and community development (Endless Solutions 2019).

Connection to the United Nations' 17 Sustainable Development Goals:

This initiative will serve to further help the development of the United Nations' 17 Sustainable Development Goals (SDGs). The first goal that this initiative will help to achieve is SDG 4, "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (United Nations Sustainable Development Goals 2019b). The expansion of access to information and communication technologies

(ICTs), like computers, will supplement the development of “equitable quality education...for all” (United Nations 2019). Through increasing access to education, this project will also expand the development of SDG Goals 8 and 9. SDG Goal 8 which, “promotes inclusive and sustainable economic growth, employment and decent work for all,” will be advanced through the augmentation of education (United Nations Sustainable Development Goals 2019c). Similarly, SDG Goal 9 which advocates the need to “build resilient infrastructure, promote sustainable industrialization and foster innovation,” will benefit from the expansion of education (United Nations Sustainable Development Goals 2019d). Moreover, this project will support the advancement of SDG 1, “end poverty in all its forms” (United Nations Sustainable Development Goals 2019a).

Expectations / Conclusion:

Education is inherently tied to economic development and poverty. Increased levels of education clearly correlate to the expansion of economic opportunities and reduced levels of poverty. In sub-Saharan Africa, approximately “413 million people [live] at the international poverty line $1.90” and have few economic opportunities (World Bank 2018). Expansion of education remains the best method to improve these conditions. By increasing the availability of computers to students, the opportunity for economic development and innovation will increase. This will lead to the advancement of economic opportunities on an individual and national level, which will result in a reduction in poverty and improved life outcomes.

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