

Kenya's Digital Literacy and The Effects of The Digital Divide

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Bio

Mercy Jemeli Biwott is a current student at De Montfort University, pursuing BSc (Hon) Biomedical science. I went to Sironga girls' high school in Nyamira county, for my form one and two, then went to Moi High school Kapsowar in Elgeyo Marakwet for form three and four, where I did my Kenya Certificate of Secondary Education. Mercy started off in Green view primary school in baringo county and later on went to Sun and Shield primary school in Nakuru county where I did my Kenya Certificate of Primary Education. Mercy was born in Baringo county in a small town called Eldama Ravine. Living and growing up in Baringo was fun, though also challenging. It is because of some of the hardships that we went through growing up in Baringo that has made us who we are right now. I remember at some point I had to walk miles to get to School, but we thank God for bringing us this far in life. Being brought up in a tough environment prepared me for any challenging situations in life. I tend to believe that I can solve any problem that life can bring, no matter the circumstances.

Introduction

The digital divide is unequal access to information and communication technologies such as software, computers and laptops among people of different groups. This can be seen in Kenya, whereby individuals from the upper social class have access to such tools, unlike those from lower social backgrounds; according to (Ndungu, 2019) over the past few years, from 2004 to 2016, the government of Kenya, through the Ministry of Education, has been focusing on the integration of technology to its education system as a way of promoting a sustainable education system, thanks to the trend of the world on the advancement of technology to various aspects of life for instance in today's world there has been a shift towards dependence on technology in the industrial sector due to its accuracy hence minimizing errors as well as it lowers the cost of

manufacturing product or processing (Karimi, 2020). The government of Kenya has had the will to promote digital literacy through the education sector by ensuring equitable access to Education among children despite their social backgrounds. In ensuring digital literacy in Kenya, the first sponsors were Fetish and Belgian non-governmental organizations that helped provide resources to various institutions in Kenya and equip teachers with the necessary skills and knowledge to help impact both skills and knowledge of learners.

There are various types of digital divide which include; usage gap, access gap, digital gender gap and generation gap. The usage gap is a digital divide due to individuals needing more skills and knowledge to use technology equipment; for instance, people from rural areas need qualified trainers. They, therefore, need to gain these skills. On the other hand, the access gap refers to the digital divide whereby a group of people lack access to ICT equipment's for instance, in Kenya, this is brought socioeconomic inequalities and political instability, which causes a region to be underfunded by the government. The digital gender gap refers to the digital divide whereby one gender has little ICT access, leading to fewer of them pursuing STEM careers. This is evident in Kenya, whereby STEM careers are dominated by males mainly due to reduced access to ICT among women (Ndung'u, 2019). An example is a survey undertaken in Techlight Africa, a Baringo school focused on educating young ones on IT-related courses. It was established that a lot of students enrolled were boys. Also, a recent survey conducted by Citizen Television, indicates that in tech related career field it is highly dominated with men with a percentage of approximately 68%.

1. Issues Affecting Digital Literacy in Kenya

A lot implemented in the Kenyan curriculum is mainly copied or borrowed from Western countries that fully integrate technology into their education systems. One of the clear signals

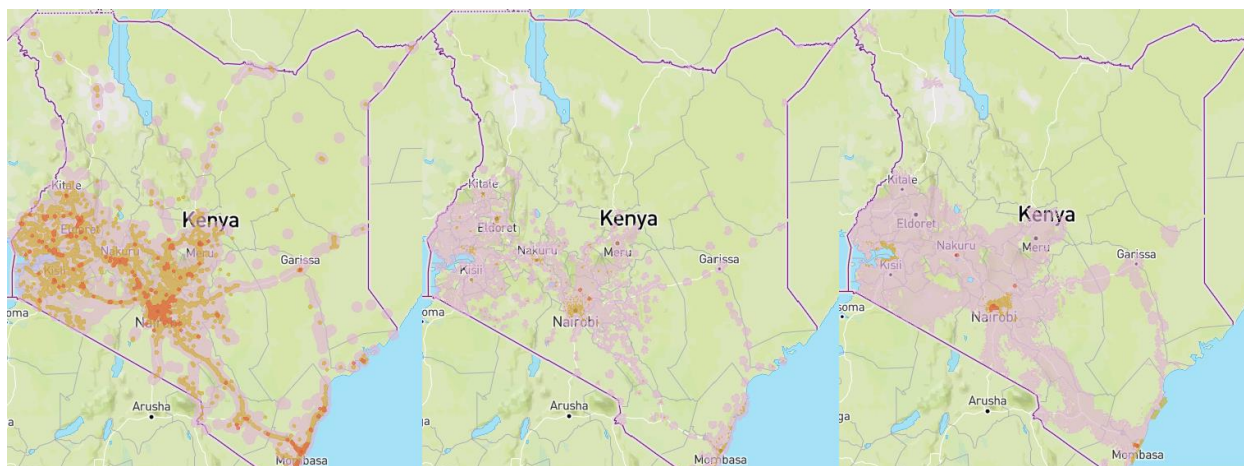
that indicate the presence of a technology gap in the education sector is seen in the various schools sponsored by fetish and Belgian non-governmental-governmental organizations. After they left, we can still see that the use of computers was neglected. Also, the teachers who were trained could not continue. In scenarios where the schools continued with the integration of technology into learning, once these trained teachers went on retired, the program would also come to an end (Karimi, 2020). Additionally, since these sponsorships were not provided to all schools, those schools' neighbouring sponsored ones could not reach out for exchange programs due to poor leadership or lack of adequate infrastructure. The following factors cause the digital divide in Kenya: the rural-urban range, income level, and income and developments.

- **Rural-urban divide**

Because of the rural-urban divide, the employment of digital technology is hampered by various issues specific to rural regions in Kenya. According to the World Bank's Kenya Economic Update, whereas 44% of Kenyans in urban areas have a connection to the Internet, just 17% of Kenyans in rural regions have (Heinrich, Darling-Aduana, & Martin, 2020). What flourishes in the city may not thrive in the countryside and vice versa. This is why there is a surge in urban-specific technology development. But if more product developers had a better grasp of the problems, more would likely be made for the rural market. This is also evident among the children, whereby due to access to good networks and availability of resources since most people living in urban areas have easy access to ICT equipment, therefore, primary schools, especially the private sector, promote digital literacy (Ndung'u, 2019). Despite the government effort, like installation of libraries has been a primary source of the digital divide whereby they have only installed these libraries in urban areas, therefore, disadvantaging those in rural areas.

- **Infrastructure and developments**

Remote parts of Kenya still face a major challenge due to inadequate infrastructure. When it comes to access to various resources such as innovation hubs, educational institutions, the Internet, mobile networks, and grid power, rural populations are at a disadvantage compared to their urban counterparts. Service failures occur as a domino effect due to key absences. Telecommunications companies find it easier to build up mobile networks when there is electricity, and as a result, fewer people buy mobile devices when there are already established mobile networks. The quality of the infrastructure may need to be improved even in places where it exists (Heinrich, Darling-Aduana, & Martin, 2020). Although Safaricom's 4G network reaches 77% of Kenya's major cities, it comes to only 57% of the country; most rural areas still need to be achieved. Looking at the map below, it is clear that rural areas of Kenya have the weakest 4G coverage.



Source: Engineering for Change / This network coverage map shows, from left to right, Safaricom, Airtel, Telekom (pink-GSM, yellow-3G, orange-LTE).

Even the simplest technologies might fail to function as intended, as highlighted by Patrick Sampao from his experience installing digital solutions in rural areas. The Universal Short Message Service (USSD) is one such service; it's a text-messaging protocol in the same vein as SMS. With USSD, users can send text messages from any phone by dialing a command

like *123#, which prompts the recipient to enter a number corresponding to the desired service. Many older SIM cards cannot support this feature, even though it operates on any cell phone and doesn't cost the user anything. To use the USSD service, customers must first replace their SIM cards.

- **Income levels**

Kenya has a serious poverty problem, but rural parts have it much worse. People in rural areas do not have as much discretionary cash as in cities, which explains why the demand for numerous amenities is lower. Even though the population size is substantial, the economics become more challenging due to the lower population density. Low-income neighbourhoods may need to find a way to afford to use numerous internet services due to competing needs. Payment-based digital services should address immediate problems. The AfriScout app is a prime example of such a tool (Ndung'u, 2019). This programme has been downloaded over 6,000 times because it provides a necessary service, helping pastoralists find their way to water and grazing land sources. Freemium models, in which customers are offered assistance in exchange for viewing advertisements, are another option for monetizing digital items. Facebook and other social media platforms can achieve global reach in this way.

Despite having lower disposable income than their urban counterparts, rural residents may face higher expenses for certain services due to increased costs associated with infrastructure development, maintenance, and fuel. According to Michael Ouma, who supplies Internet services in the northern region of Kenya, a 10 Mbps link costs at least KShs 30,000, while in Nairobi, the same speed would cost less than KShs 10,000. Rural establishments will incur higher operating costs compared to their urban counterparts.

2. How to Overcoming these challenges

- **Government policy**

Inventors should set prices for sustainable products for the rural economy. Instead of asking for a large sum of money upfront, one novel approach is to offer manageable monthly payments. This pricing model has proven successful for many other items, which may be why Safaricom expects to sell 1 million 4G-enabled handsets in Kenya this year. According to a Nielsen study, more than 70% of FMCG sales were for items costing less than KShs 55. Subsidies for ICT goods, which would help reduce the cost of such equipment, as well as reductions in taxes levied on such items, would also be beneficial in increasing digital literacy in rural areas. Rural markets can have high entry barriers (Karimi, 2020). Partnerships can help innovators offset their high entry costs and provide a path to market. They can also share infrastructure, as has been done in the past with various telecommunications companies.

- **Innovation among investors**

It is also critical to discover or develop appropriate technology for rural areas. Power-hungry gadgets or programmes that require a constant data connection may not be practical. Alternatives include USSD, SMS, interactive voice services, devices that do not require grid power and apps that can run on low-cost smartphones. Even though other options, such as prepaid solar energy sources, have been introduced, they could be more sustainable due to their high cost. Still, they help those who can acquire them, as in my rural area, where we still face power rationing. Above it is power shadowing, in which there is constant power loss in rural areas, to ensure. Safaricom PLC, in collaboration with other companies, offers the Mkoa solar panel system. This system costs around \$80,000, but customers can pay for it in 24 monthly installments over 24 months.

- **Providing adequate training**

Addressing the widespread problem of low levels of digital literacy will need efforts across several different upskilling and educational fronts. Older people have fewer opportunities to acquire and use digital skills than today's youth. If they want people in rural areas to adopt their solutions, they must ensure their products are straightforward. The distribution of computer literacy skills is an area that could benefit from the involvement of social entrepreneurs. In addition, rural areas must be incorporated into the industrialization process. For instance, in the notoriously dangerous region of West Pokot, an investor has set up a cement production sector, which will employ locals and encourage them to acquire skills in demand by local businesses. Manufacturers in the neighbourhood would also boost the area's electrical supply and allow companies to work with local schools to educate their workforce for a better future. Many academics, especially education comparativists, believe that people's natural curiosity led to the evolution of different educational systems. For example, during the travelers' tale period (1800s), people who had travelled to other countries would return home and tell their families about the educational progress they had witnessed in other countries. People in rural regions can be more interested and spread ideas more effectively after industrialization is introduced.

- **Bridging the digital gender gap**

Although the government of Kenya, through the Ministry of Education, has been partnering with various agencies, both from private sectors and non-governmental-governmental organizations, in providing ICT equipment and, at the same time, providing adequate training to teachers so that they can efficiently train the young ones there have emerged issues of digital gender gap which however I believe with proper policy and collaborations they would be able to overcome. Additionally, there is a need to bridge the gap on digital gender gap whereby in

Kenya, IT-related fields are dominated mainly by men (Karimi, 2020). Digital gender inequality in Kenya especially is evident and has affected women mostly as shown in table 1. However as per the survey conducted by ministry of education it indicated that there was a significant increase in the number of girls that were enrolled in computer classes as shown below compared to a public school in Kajiado

School	No of students enrolled in computer	
	Boys	Girls
Kibera secondary school	23	24
Kasarani secondary school	38	8

From the survey it can be seen that when compared to Kasarani secondary school, Kibera secondary school has a higher number of students who pursue computer studies and this is attributed by initiatives from sponsors who funded school with necessary equipment and sensitized on digital literacy among girls. therefore, the government can input measures such as providing job opportunity reserves to women, which may help motivate them to undertake studies on IT. Also, the government can promote digital literacy among women by developing schools fully equipped with ICT materials meant for the girl child.

Conclusion

By integrating technology into its education system, the Kenyan government has been leading the efforts to promote digital literacy among its citizens. The integration of technology into learning and the development of students' skills has taken a positive step forward with the recent introduction of the Competency-Based Curriculum (CBC) initiative. Although their efforts have resulted in a digital divide, the government's approach to integrating technology in learning

should not be discredited because the issue is reversible if they can implement various measures such as reviewing government policy, involving non-governmental and governmental organizations, providing adequate funding to rural areas, and involving stakeholders such as industries and businesses in formulating education policy. Through these policies, the government can ensure that digital literacy is promoted throughout the country.

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