

Open Educational Resources and Bridging the Digital Divide: The Challenge of Developing Countries

Ukoha O. Igwe, National Open University of Nigeria, Victoria Island, Lagos Nigeria.
ukohaigwe@yahoo.co.uk

Abstract

This paper examines the concept of the digital divide in developing countries and the use of open educational resources to promote access and social inclusion. Bridging the digital divide encompasses a complex array of issues incorporating physical, digital, human, and social divides. Content and language, hardware, literacy and education, and community and institutional structures must all be taken into account if meaningful access to new technologies is to be provided. What role, then, can OER play in bridging the digital divide in developing countries? What are the challenges facing developing nations towards digital social inclusion using open educational resources? Can OERs address some of educational inequity in developing countries?

Keywords: Open educational resources; digital divide; mobile technology; digital technologies.

Synopsis

According to Kanwar (2007), digital divide consists of 'differences due to geography, race, economic status, gender and physical ability in access to information through the Internet, and other information technologies and services, as well as in the skills, knowledge and abilities to use information, the Internet and other technologies'. It refers to the existing gap between those who can use new digital technologies and who can't. Dijk (2008) defines it as the gap between those who do and those who do not have access to new forms of information technology. Contrary to the general impression, the digital divide is a complex array of various factors: social, economic, cultural, and political; it can exist in low and high socio-economic areas; and is not limited only to developing countries. The general notion is that the digital divide is merely an economic problem that affects poor countries. Even in the highly industrialised countries, a considerable percentage of the population though can afford the digital technologies, are not capable of using the new technology. Davidson and Goldberg (2009) note that the digital divide is not just an old concept but a current reality in the United States; and the United States Department of Education (2009) argues that the digital divide is poverty-related differences in the use of educational technologies in some schools in the United States.

Karen, Tolbert, and Gilbert (2006) point out that a digital divide is an economic inequality between groups, broadly construed, in terms of access to, use of, or knowledge of information and communication technologies (ICT). While Guillen and Suárez (2005) and the China Internet Network Information Centre (2007) note that the divide inside countries (especially developing countries) refers to inequalities between individuals, households, businesses, and geographic areas at different socioeconomic and other demographic levels, and the global digital divide denotes the divide between developing and developed countries on an international scale. Economic status is critical in determining where one is in the digital divide. It is clear then that the digital divide is not simply a matter of having access to computers and connectivity but is a wider development issue. Schauer and Radermacher (2011) state that the digital divide has deepened the difference between the rich and poor and the haves are now the "knows", and the have-nots might become the "know-nots".

There are several dimensions or reasons for the digital divide including *inter alia*:

1. Lack of the literacy and knowledge to use digital technologies;
2. Lack of empowerment to fully use the opportunities provided by digital technologies; even when these technologies are made accessible and easy to use, several people are still not able to take the full advantage of their potentials;

3. Most developing countries are characterised by lack of opportunities for business and economic progress. They are confronted with seemingly more pressing challenges, such as provision of food, health care, education, security etc. instead of providing access to digital technologies.

Lacolare (2007) points out that the digital divide is not a problem in itself, but a symptom of deeper, more important gaps: of income, development and literacy. Wilson, Wallin & Reiser (2003), Wilson (2004), Guillen & Suarez (2005), Karen, Tolbert & Gilbert (2006), China Internet Network Information Centre (2007) and Carr (2007) agree that obtaining access to ICTs and using them actively has been linked to a plethora of demographic and socio-economic characteristics: among them income, education, race, gender, and geographic location (urban-rural), age, skills, awareness, political and cultural and psychological attitudes. Hilbert (2010) observes that multiple regression analysis across countries has shown that income levels and educational attainment are identified as providing the most powerful explanatory variables for ICT access and usage.

State of Digital Divide in Developing Countries

In developing countries, digital technologies are still far from being “simple” and “easy to use” for many people. This issue is valid both for educated and uneducated people and is transversal to any geographical locations. Many people would still be unable to use a computer even if they got it for free. The level of literacy skills among the owners of a computer is very low. In many developing countries, there are still significant traces of “cyberphobia or technophobia”. Acquiring the motivation to use a computer and to achieve an Internet connection is the first step to accessing digital technologies. Dijk (2008) notes that many of those who remain at the ‘wrong’ side of the digital divide have motivational problems. It appears that there are not only ‘have-nots’, but also ‘want-nots’. This phenomenon of anxiety that usually accompany the advent of a new and perhaps frightening technology was very prevalent in the 1990s. A large part of the population of educated and uneducated in developing countries showed signs of technophobia, computer anxiety and distrust in a world dominated by computers. In our contemporary era, although computers, Internet and mobile technology penetration have greatly diminished signs of technophobia, the fears and dislikes have not disappeared, (UCLA, 2003). However, recent surveys show increase in the use of digital technologies in developing countries, (Horrocks, 2013, Basorun, et al (2013).

Bridging the Digital Divide in Developing Economies

“Digital Divide” refers to the gap between those who can benefit from digital technology and those who cannot. “Closing the Digital Divide” therefore means more than just giving the poor the same technologies already received by the rich. Closing the Divide involves restructuring the telecommunications sectors in each nation so that the benefit of broadband internet access can flow to the masses. It took digital-divide researchers a whole decade to figure out that the real issue is not so much about access to digital technology but about the benefits derived from access.

The new view is that closing the digital divide will be most effectively achieved through a two-pronged approach, one that is direct and the other that is indirect: The direct approach will be for governments and businesses to work together to change the incentives that shape digital markets. The indirect approach will be for them to team up on new strategic alliances funded by public-private partnerships for rural health care, quality education, etc. Through these two approaches, the low-income masses may be able to reap many of the same benefits as the wealthy. Schwab (2001) says that digital technology is the key that opens the door to the knowledge economy. And if we fail to provide access to digital technology to countries in the developing world we are, essentially, denying them an opportunity to participate in the new economy of the 21st century.

Open Education Resources and the Digital Divide

Open Educational Resources (OERs) refer to open course content, open source software, and free course development and delivery tools. UNESCO (2012) defines OERs as teaching, learning or research materials that are in the public domain or released with an intellectual property license that allows for free use, adaptation, and distribution”. They are available over the internet and do not have technical, monetary, nor legal barriers. (Hylén, 2006). They include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge.

In 2001, the Massachusetts Institute of Technology (MIT) in an unprecedented move, announced the release of nearly all its courses on the internet for free access. This OpenCourseWare (OCW) initiative offers thousands of MIT courses to millions of users around the world (Lerman, Miyagawa, & Margulies, 2008). Today, many OER repositories and programmes use MIT's OCW. As the number of institutions offering free or open courseware increased, UNESCO organized the 1st Global OER Forum in 2002 where the term Open Educational Resources (OER) was adopted.

Wikipedia, the world's largest online encyclopaedia, is another pioneer in OERs. In 2001, co-founder Jimmy Wales launched a free, open content encyclopaedia. Comprised of user generated and maintained OER, Wikipedia quickly gained participants and articles. Hosting millions of users every year, Wikipedia is one of the most visited sites on the internet (Schmidt & Surman, 2007).

The last five years have seen tectonic shifts in how technology is being used to close the digital divide. Pioneered by the MIT, the Open Courseware movement, based on the principle of knowledge sharing marks the first generation in which knowledge is seen as our common wealth. The online course materials of the UKOU is the second generation wherein existing self-instructional materials are being put into online format. The third generation is collaborative course development as exemplified by the wikiEducator, a course authoring tool being used to develop materials for the Virtual University for Small States of the Commonwealth (VUSSC). The wikiEducator is emerging as a dynamic and collaborative tool of free content development. In this phase, the focus is shifting from 'this courseware is mine to this courseware is for (open) mining' (Atkins, Brown and Hammond, 2007).

The Open Education Resource movement (OERs) is turning the focus away from competition to collaboration and a search for collective excellence. The world is changing to meet the demands of globalization and the advancement of technology. Open Educational Resources (OER) are a viable option for widely dispersing affordable, relevant, and up-to-date information to people who might not otherwise be able to obtain or afford an education. The availability of open educational resources will be a propelling force for multitudes to resort to in pursuit of various levels of academic activities. This then would be the impetus to breaking techno barriers and connecting to the global network of computers, persons and resources.

In developing countries, the rise of mobile technology is changing the story. Groups that have traditionally been on the other side of the digital divide in basic internet access are using wireless connections to go online. Among smartphone owners, young adults, minorities, those with no college experience, and those with lower household income levels are more likely than other groups to say that their phone is their main source of internet access. On the other hand, the diffusion of mobile phones might represent an important growth opportunity for developing countries. The reason is not far-fetched. Mobile phone technologies do not need a permanent electricity supply and can be used by people who can neither read nor write. (Bhavnani, et al, 2008).

Challenges

In developing countries, integrating these mega-trends and bridging the digital divide is a crucial challenge. Information technologies lead to opportunities, but also to risks for sustainable development. Schauer and Radermacher, (2011) maintain that they offer many chances for more social inclusion, cultural diversity, protection of nature, and economic growth.

Some of the challenges of integrating OERs and bridging the digital divide include:

- i. Foreign content and culture
- ii. Language barrier
- iii. Poor internet access
- iv. Lack of information on available OERs
- v. Scepticism on the value of free OERs

The Way out for Developing Economies

Increasingly, governments and interest groups are focusing on open educational resources as a way to enable mass participation in the connected world. Incidentally, there are so many groups that could not be reached easily. The rural and remote learners, isolated urban learners and people with poor English

literacy skills require assistance. Every group requires a different approach. It is imperative to take steps to address diverse needs. Pitman (2012) says a common goal is good, a common strategy is not. Indigenous communities, for example, require a more nuanced approach than simply a one-size-fits-all policy.

Collaborate, share and disseminate

Countries in developing economies need to come together. They cannot successfully operate in isolation or solve the digital divide on individual basis. There is need to pool resources together, share skills, ideas, share content and disseminate information on developments in OERs, bandwidth etc. There is no need reiterating that broadband Internet connections are extremely expensive in the developing world. Therefore, the need to pool resources together cannot be overemphasized.

Adapt, develop and localize

Open educational resources can be seen as suitable for the reduction of the digital divide. Many of them offer a high amount of user friendly tools; which provide a high degree of efficiency, making them interesting for private as well as for business use. This is true for developed countries where the digital gap is hardly noticed. Developing countries can build on the provided tools and adapt several OERs, develop them to local and environmental standards and localize the features and tools such that users can gain easy qualifications. This is in line with the observation of Balasubramanian (2012) that technology should not be perceived in isolation but should be placed in the context of social capital which will enable the domestication of technology by the communities.

Initiate, innovate and design

Open educational resources are also associated with a lot of drawbacks. As someone said, “the learning curve can be high for some of the more advanced programmes. There is usually no customer service centre. Users are often forced to sift through endless forum topics to find answers to simple problems which can be frustrating to the novice computer user. Your favourite software package may lose support or fall out of favour with the Open Source community and may vanish without fanfare or announcement as well. Consequently, developing nations need to initiate their own platforms designed with innovation that can address some of these challenges and inherently help to attract and retain the novice computer user.

Conclusion

The effective use of ICT to transform economic development may indeed be the imperative of the day. However not addressing the digital divide first is unwise. Including mobile access in ICT projects, focusing on OERs and making them relevant to the daily lives of the masses will help in bridging the divide.

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