Evidence Based Library and Information Practice

Article

The Impact of Public Access Venue Information and Communication Technologies in Botswana Public Libraries

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Received: 23 Jan. 2015 **Accepted**: 13 May 2015

Abstract

Objective – A study on the impact of Public Access Venue (PAV) Information and Communication Technologies (ICTs) was conducted in Botswana libraries with Internet connections. The main objective was to determine the impact of ICTs in public libraries. Methods –Using the Sustainable Livelihoods Framework as a theoretical lens, the study used semi-structured interviews and focus group discussions to investigate the impact of PAV ICTs in 4 study sites, resulting in data from a total of 39 interviews and 4 focus groups.

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Results – The results of the study show that PAV ICTs had a positive impact on users in the areas of education and economic benefits. Within educational and economic impacts, social benefits were also found, pertaining to the use of social media and the Internet for formal and informal communication. The study also revealed a slight difference between school going users and non-school going elderly users where the use and acquisition of computer skills was concerned. Elderly non-school going users tended to rely on venue staff for skills more than the younger school going users.

Conclusion – The study recommends that PAV facilities should be improved in terms of skills offered and resources availed so as to appeal to both the younger school going generation and the older non-school going users. It is also recommended that education on ICT be improved to help curb rising unemployment in Botswana; such skills would enhance the income generation skills of the unemployed users as well as school leavers.

Introduction

A qualitative study was carried out to investigate the impact of Public Access Venue (PAV) Information and Communication Technologies (ICTs) located in Botswana libraries. Botswana is a land-locked country in South Africa that shares borders with South Africa, Namibia, Zimbabwe, and Zambia. Botswana has a projected population of 1,926.872 people in 2015 (Population & Housing Census, 2011). The Government of Botswana through the Ministry of Youth, Sport and Culture (MYSC) and African Comprehensive HIV/AIDS Partnerships (ACHAP), collaborated using a grant from Bill and Melinda Gates Foundation (Gates Foundation) to equip public and community libraries with ICT facilities and training.

This paper makes a distinction between public libraries and community libraries. The former were built by the Botswana National Library Service while the later were built and sponsored by the Rothschild Foundation. Both public and community libraries fall under the Botswana National Library Service (BNLS). BNLS was established in 1967, as a government department for the provision of library services. BNLS is responsible for community libraries, public libraries, and village reading rooms (VRRs) (Isaak, 2000). The later were introduced in 1986 as an extension of Public Library Service in rural areas, and they are smaller than public libraries in size and breadth of services (Baffour-Awuah & Pilane, 2001).

The phrase public access venue is used to refer to libraries (public and community), village reading rooms (VRRs), cybercafés, and telecentres (the latter are known as Kitsong Centres in Botswana). The phrase is used to show ICT availability either for free, as in libraries, or at a cost in cybercafés. A national data inventory in 2009 revealed a total of 164 public access venues for the provision of information to the nation. This number included 96 public and community libraries, as well as village reading rooms (all under the Botswana National Library Service) and 48 non library venues such as Kitsong Centres, private Internet cafes, and other resource centres (Grand et al., 2010). Today the number of public access venues has increased. There are 27 public libraries, 7 community libraries (acquired through the Rothschild Endowment), and 69 village reading rooms (Sesigo Botswana Public e-Libraries, 2010).

This study focused on the impact of free public access ICTs in public and community libraries that were equipped with computers and Internet access through the Bill and Melinda Gates Foundation and the Sesigo Project (Sesigo is a Botswana National Language word which means a storage for harvest). By 2010 the number of public access venues under BNLS had risen from 96 to 98 (Sesigo Botswana Public e-Libraries, 2010). The Sesigo Project aimed at computerizing and networking public and community libraries as well as building the capacity for library employees to serve in e-enabled environments across Botswana (Mutula, Grand, Zulu & Sebina, 2010). About 78 out of 98 of all venues (branch libraries, village reading rooms, and community libraries) were targeted. Through this project, the public is provided with free access to computers, Internet, and ICT training.

Botswana Information Technology Policy Context

The Millennium Declaration of 2000, and its eight goals that are referred to as the Millennium Development Goals (MDGs), became the point of departure for practically applying and theoretically understanding ICTs in socio-economic development (Jensen, 2011). ICT-focused development efforts can be traced back to the mid-1990s and were focused on providing or improving access to information resources in an emerging knowledge society (Parkinson & Ramirez, 2006). The rationale is that lack of access contributes to the marginalization of deprived people and that ICTs can improve that situation.

In line with the Millennium Declaration, the Botswana Government initiated projects, policies and strategies for the improvement of access to ICTs in Botswana. To date, policy initiatives include the Universal Service and Access (USA) Policy (Telecommunications and Postal Services, 2015), the Maitlamo, Botswana's National Information and Communication Technology Policy (2004), and Long Term Vision for Botswana Policy (1997). All these policies aim to improve ICT access for the nation. Additionally, the Botswana Government developed telecommunications infrastructure to support information technology access, including "The national fibre backbone infrastructure (Trans-Kalahari); the international connectivity with the rest of the world through the West Africa Festoon fibre System (WAFS) and the East Africa Sea cable System (EASSY)" (Telecommunications and Postal Services, 2015) and the Rural Telecommunications Strategy (RTS) for the improvement of information and communication technologies in rural areas.

ICT Policies and Projects

The Botswana Government developed the Universal Service and Access (USA) Policy in order to improve telecommunications in its entirety. This policy includes Internet and postal services, as well as broadcasting and media services (electronic and print). It is envisioned that universal access will be achieved throughout the country through this policy (Telecommunications and Postal Services, 2015). The Government of Botswana, in line with the Maitlamo National Information and Communication Technology Policy, has initiated the Rural Telecommunications Strategy as part of the Rural Telecommunications Development initiative (Mutula et al., 2010). The government set up ICT infrastructure in the villages in Botswana in a project known as Nteletsa II. The word "Nteletsa" comes from the National Language of Botswana (Setswana) and it means "call me". Therefore "Nteletsa" can be construed to mean the enhancement of communication because through this project it is expected that Internet and mobile communication access will be improved to facilitate economic activities within communities (Telecommunications and Postal Services, 2015). By the end of the Nteletsa II project, every village in Botswana is expected to have a telecentre where the public can access the Internet and other telecommunication services at a fee. Therefore, this access to ICTs in the "Nteletsa" Project is not free for the public.

Long Term Vision for Botswana Policy

The Long Term Vision for Botswana Policy which has been dubbed "Vision 2016" has seven vision pillars, namely: 1) 'An Educated, Informed Nation'; 2) 'A Prosperous, Productive and Innovative Nation'; 3) 'A Compassionate, Just and Caring Nation', 4)'A Safe and Secure Nation', 5)'An Open, Democratic and Accountable Nation', 6) 'A Moral and Tolerant Nation', 7) 'A United and Proud Nation' (Long Term Vision for Botswana, 1997, p.ii). The most relevant pillar for the present paper is Vision Pillar 1, which aims for universal education, an informed people through access to information, and a literate nation. Some of the objectives for Vision Pillar 1, according to the Long Term Vision for Botswana Policy document are:

1. To acquire "the best available information technology . . . ."(p.5).
2. "Develop communication capacity . . . ."(p.5).
3. "…the people of Botswana will be able to use and apply the potential of computer equipment . . . ." (p.6).

The above objectives all aim at improving access to information through enhanced ICTs. The provision of public access venues like libraries and telecentres fits into the "educated and informed nation" pillar. Although the development of telecentres was very instrumental in extending access, this did not extend to public and community libraries; therefore the intervention by donors like Bill and Melinda Gates Foundation and the Rothschild Foundation to build and equip libraries has filled a gap in the Information and Communication Technology scenario in Botswana public and community libraries (Churu, 2014).

Objective

The impact of Public Access Venues (PAVs), located in libraries in Botswana was investigated. The main areas of investigation centred on the impact of ICTs on education, income generation, and employment opportunities on the users of ICT in free public access venues. The co-location of public access ICTs with public and community libraries was of particular interest in the present study. At the time of the study, the Internet had already reached libraries through aid from donors. The government has contributed by creating relevant policy which enhances the availability of telecommunications and the donors brought the ICT facilities for users of the libraries. The focus of the study was on assessing the impact of these facilities on the livelihoods of the users via the theoretical lens of the Sustainable Livelihoods Framework (SLF). During the fieldwork, seventeen libraries were equipped with computers and the Internet and they were functioning as public access venues (located in public libraries). These libraries constituted part of the sample for this qualitative study. The study used the SLF as a theoretical lens because of its popularity in studies of this nature (Arun, Heeks, & Morgan, 2004).

This study was part of a series of Global Impact Studies carried out in several countries around the world. The specific research objectives for this study were:

1) To find out whether PAV ICTs enhance the education of users in Botswana.
2) To investigate whether PAV ICTs enhance the employability and income generation strategies of users in Botswana.

Literature Review

The literature review examines the concept of sustainable livelihoods, the ICT, and national library context. It covers the socio-economic status of Africa and Botswana, in line with the purpose of the study which is to determine the impact of ICTs on the income generation techniques and the education of the users. The education of users includes both school related issues and information literacy skills. Income generation is in part an economic issue as well

as a political phenomenon where policy is involved. The economic status literature deals with poverty and lack of income while the political situation deals with Botswana policy in relation to Information and Communication Technology. Socio-economic barriers to ICTs therefore form part of the basis of the literature review.

The Sustainable Livelihoods Framework

The Sustainable Livelihoods Framework (SLF) originated in the social sciences as a response to the realization of the defects of conventional professional analysis of poverty: production thinking, employment thinking, and poverty-line thinking (Chambers & Conway, 1992). The concept of sustainable livelihoods served as a program development catalyst for organizations concerned with development such as the United Nations Development Programme (UNDP), Department for International Development (DFID), Food and Agriculture Organization (FAO), International Fund for Agricultural Development (IFAD), and various research institutes (Brocklesby & Fisher, 2003). Although the methods and frameworks that emanated from these organizations differ, they all use guiding principles from Chambers and Conway (1992). As a point of departure, sustainable livelihoods approaches propagate the need to understand the livelihoods of poor people in context (Arun, Heeks & Morgan, 2004). They seek specific constraints which inhibit people's ability to improve their livelihoods in a sustainable way. Sustainability is defined as "the ability to maintain and improve livelihoods while maintaining or enhancing the local and global assets and capabilities on which livelihoods depends" (Chambers & Conway, 1992, p.5).

The SLF has five parts: vulnerability context, capital assets, transforming structures and processes, livelihood strategies, and livelihood outcomes (Parkinson & Ramirez, 2006). The context of users is described as the everyday shocks, trends, culture, and the environment that impact on people's use of capital assets. In the present study, the culture and environment of libraries without ICTs can have some influence on how people use ICTs for a livelihood. This context further impacts on the available capital assets in the form of physical, human, financial, social, and natural resources that shape the people's livelihoods. The present study concentrated on the social (e.g. ICT skill acquisition) and physical assets (e.g. facilities) in order to determine how available assets enhance the livelihoods of users in terms of income generation. Accordingly, capital assets impact on the transforming structures and processes and this is where policies and laws are enacted by both government and the private sector to enhance ICT uptake, as is the case of the present study (e.g. Vision 2016). This study described enacted ICT policies and showed how transforming structures and processes can create an environment that is conducive for ICT use and uptake. The vulnerability context, capital assets, and transforming structures and processes, also influence the kind of livelihood strategies and livelihood outcomes people would choose for survival. The present study sought to identify impacts of public access ICTs by identifying the livelihood strategies and outcomes that result from ICT use. For example, income generation using public access ICTs would be regarded as a strategy and positive outcome. The SLF is instrumental in studies that seek to find out whether an intervention like ICT changes the lives of the marginalized.

Socio-Economic Barriers to ICT Access

The socio-economic situation with regards to information and communication technologies in Botswana needs to be reexamined following the intervention in public access that has been described above. However, based on the literature on Sub Saharan Africa, Botswana has not removed all the hurdles that hamper access to ICTs (Maswabi, Sethate, Sebusang, & Taolo, 2011; Oladokun and Aina, 2011; Totolo, 2014). The obstacles to technology diffusion and use in libraries and the country can be categorized as

access issues. Africa's lack of communication channels, lack of IT education and training, lack of information literacy, non-utilization of computers, underutilization of available computers and other technologies is documented in the literature (Bose, 2004; Oladokun & Aina, 2011; Totolo, 2014). Most of the barriers to ICT access and use in Africa are intertwined with the socio-economic situation related to poverty and lack of education (Hillborn, 2012; Rice, 2003) which invariably lead to policy failure. This can be categorized as the digital divide, which is described as the socio-economic gap caused by lack of resources and opportunities to access ICT and use it for various activities. The digital divide is said to prevail between individuals, households and geographic areas (Papazafeiropoulou & Pouloudi, 2004). The digital divide, which characterizes most of Africa (Gyamfi, 2005), is also prevalent in Botswana (Oladokun & Aina, 2011; Totolo, 2014).

The lack of information literacy skills amongst students, in general, is discussed by several authors (Beethan, McGill, & Littlejohn, 2009; Head & Eisenberg, 2010; Head, 2012). Lack of information literacy skills has been reported in the Botswana literature as well amongst elementary school teachers (Bose, 2004), distance education students (Oladokun & Aina, 2011), and secondary school principals (Totolo, 2011). The lack of education in African nations impacts the acquisition of ICT skills, which are necessary in the present digital environment. According to Duff (2011), the lack of digital skills leads to "socio-economic stratification" (p.604) which is similar to the digital divide.

The high costs of the IT equipment and the equally high cost of maintenance of technology in places where poverty is reported to prevail as it does in Botswana, (Hillborn, 2012) is a real challenge. The government of Botswana, through the Botswana Technology Centre (BOTEC) piloted three telecentres in various rural communities in July 2004. These telecentres were called "Kitsong Centres" (translated to mean "knowledge" centre) therefore, it was hoped that these centres will be used to "acquire knowledge" for sustainable socio-economic development (Radijeng, 2009). Currently the Kitsong Centres include those telecentres which were developed under the Nteletsa II project. The government has contracted Botswana Telecommunications Corporation (BTC) and a private telecommunications service provider, Mascom, to implement these projects. The guiding Sustainable Livelihoods Framework used in this study suggests that the Transforming Structures and Processes (Parkinson & Ramirez, 2006) should be a mechanism that enhances sustainable livelihoods through government and private sector collaboration. Therefore the services offered at these centres which include computer facilities, Internet access, fax services, photocopying, and printing, can contribute to sustainable livelihoods. Some of the centres are operated by Village Development Committees, parents, and teachers' association committees from schools. Most of the centres, however, are operated by young potential entrepreneurs who are trained in collaboration with the Local Enterprise Authority (LEA). The Kitsong Centres are not free for all users, therefore only those who can afford them can have access.

Public Library ICT Access

Literature consulted on the effectiveness of library services has revealed that, in general, some public libraries were underutilized in the United States at the time of the study (Sin & Kyung-Sun, 2008). Writing on this, Sin and Kyung-Sun (2008) said "While the public library aims to facilitate information access to all, only a portion of the public uses its collections, computer facilities, reference services, or library programs" (p. 207). Rosenberg (1997) and Sturges (2001) writing on the condition of libraries in Africa, argued that when libraries were built, it was expected that they would improve lives. Unfortunately most library buildings were not maintained. Shelves were either empty or full of outdated and irrelevant

materials, and funding was inadequate which resulted in the underutilization of most libraries in Africa. Many years later, libraries in Africa and Botswana in particular, had still not improved significantly. In a country report compiled by Isaak (2000), and studies conducted by Mutshewa et al., (2010), and Maswabi et al. (2011), it was discovered that some of the library service problems in Botswana include a shortage of qualified staff, limited physical space, shortage of materials, and limited facilities for using information technology.

From the national government perspective, libraries as public institutions need to show the value added to the lives of the citizens (Ambrozic, 2003). A baseline study was carried out by researchers from the University of Botswana, Department of Library and Information Studies, under the Sesigo Project to find out the status of public access to ICT in public libraries and other public access venues such as Internet cafes and Kitsong Centres. The findings showed that libraries did not offer ICT related access at that time (Grand et al., 2010).

In recent years, researchers studied the impact of public access venues in several countries to measure the impacts of publicly available ICTs. Such research includes studies carried out in eight countries under the leadership of Technology and Social Change Group of the University of Washington's Information School, in which positive impacts were reported. Positive impacts have also been realized in other reports by Sesigo Projects (2010), and Totolo and Renken (2012). Sey, Coward, Bar, Scaidas, Rothschild, and Koepke (2013), confirmed the positive impacts of PAV ICTs in the eight countries mentioned above when they said "The results show that a central impact of public access is the promotion of digital inclusion through technology access, information access, and development of ICT skills. … users … report positive impacts in various social and economic areas of their lives" (p.2.).

Overall it can be concluded that the ICTs were introduced amidst digital divide challenges (Oladokun & Aina, 2011), an almost dysfunctional library system (Maswabi et al., 2011; Mutshewa et al., 2010), and a reported poverty status (Hillborn, 2012), yet positive impacts were achieved.

Some positive impacts in PAV ICTs include the adoption and use of Web 2.0 tools. The use of Web 2.0 technologies which has been elusive for areas hard hit by the prevalence of digital divide was another yardstick for judging inclusion and exclusion to digital information in recent studies. Web 2.0 technologies have changed the social fabric of society and have introduced many possibilities for improving education worldwide. The prospects of enriching education and communication using Web 2.0 technologies have been discussed by several authors (Al-Aufi & Fulton, 2014; Badea, 2014; Berube, 2011).

Heeks, Gao, and Ospina (2010) introduced what they called the "ICT4D Value Chain" which challenges the socio-economic and political stability of ICTs in a nation. Their argument is that ICT policies need to factor in four important areas of operation, namely: readiness, availability, uptake, and impact. For policy to succeed the nation must be ready to make ICTs available for uptake and use for purposes of impact. Historically, ICT policy tended to fail in Africa (Heeks, 2002; Rice, 2003), therefore, the suggestion by Heeks et al. (2010) of building a systematic impact analysis in policy formulation is useful. For example, the ICT objectives which appear under the Vision 2016 Policy did not encompass the four areas identified by Heeks et al., (2010). If they did, all libraries would have been supplied with computers and the Internet, but that only happened after the intervention from donors. It is against this backdrop that the Gates Foundation was introduced to enhance access to ICTs and to combat the digital divide. In as much as the Botswana ICT Policy Context was instrumental in laying the ICT framework

in the country, the availability of ICTs in public venues like libraries lagged behind.

Summary of the Literature

The literature review has shown the importance of using the SLF in an ICT research study such as this one. It has also illustrated the socio-economic context of the present study, as well as ICT policy formulation in Botswana. This study, which aims to investigate the impact of ICTs in PAVs, will benefit from the context as described in the literature review, by way of identifying those vulnerabilities and impacts of ICTs that exist in Botswana. Botswana has benefited from donors such as the Bill and Melinda Gates Foundation and the Rothschild Foundation and it will be interesting to assess the impacts of these ICT developments in the livelihoods of Batswana who use PAVs.

Methodology

The study used the Sustainable Livelihoods Framework (SLF) as a theoretical framework. Several studies have employed the use of SLF in studying ICTs and developments (Albu & Scott, 2001; Arun, Heeks, & Morgan, 2004; Chapman, Slaymaker, & Young, 2001; Duncombe, 2006; Parkinson & Ramirez, 2006; Soriano, 2007). According to the SLF thinking, there is the vulnerability context (comprising of trends, shocks, culture, and environment) which influences capital assets (natural, social, physical, human, and financial). The capital assets influence the transforming structures and processes (government and private sector laws and policies) which in turn shape the livelihood strategies and outcomes of the citizens (Parkinson & Ramirez, 2006). The present study did not investigate all the variables in the framework but it used the vulnerability context (environment), some of the capital assets such as human capital development (ICT skills) and physical assets (available ICT infrastructure), transforming structures and processes (government policy structure), and finally livelihood outcomes in the form of income generation or employability.

The strength of the SLF is that it considers ICTs as a sub-set of the more complex livelihoods of people. In this research, ICTs available at the public and community libraries in Botswana were considered an asset available to users for integration into their livelihood strategies. The role and impact of ICT skills obtained from the libraries is part of human capital. The researchers were interested in understanding how the libraries' ICTs enhance the livelihoods of users. Three development domains were chosen from the larger Global Impact Study for the present study: education; employment; and income generation. These were operationalized into the SLF as both livelihood strategies and livelihood outcomes. In one of the earlier studies by Albu and Scott (2001), the SLF was used to better understand the livelihoods of people involved in micro-enterprise. A particularly interesting finding from their study is the importance of micro-enterprises' capacity to generate and manage technological change in order to maintain a sustainable livelihood.

The interviews and focus groups used a purposive sample, appropriate for this research on the "basis of the knowledge of the population" (Babbie, 2001, p. 179). Focus group discussions and semi-structured interviews were conducted at the four study sites spread across the country and these are Gaborone (capital city in the south east), Ramokgonami (remote village in central Botswana), Kasane (tourist township in the north east), and Jwaneng (a town in the south). The sampling took into account the different parts of Botswana, as well as the different situations in the different regions. In Botswana, diamond mining accounts for a third of the economy therefore the mining town of Jwaneng was chosen. The second highest source of income is tourism and Kasane, which is a tourist site, was chosen. Agriculture is another source of income so the agricultural village of Ramokgonami was chosen. The urbanized, capital city of Gaborone was also included (Our

Africa, Botswana Economy and Industry Website).

A total of 39 semi-structured interviews and 4 focus group discussions were conducted. These methods of data collection are useful for qualitative research designs since they are flexible and are not dependent on the sample size as quantitative designs are (Babbie, 2001). An exit interview strategy was used, after verifying library usage, with particular attention to gender representation. Participants were recruited for interviews during the researcher's first two days at the library and the focus group discussion was done on the third day. The exit interview was useful because patronage was very low in some of the selected venues and researchers had to wait for users to trickle in.

Participants could partake in either English or Setswana (Setswana is the national language of Botswana and English is the official language). The interviews and focus group discussions were recorded with permission. All user interviews and focus group discussions were transcribed verbatim in the used language. Setswana speaking research assistants were used for transcribing the Setswana interviews. The principal researcher, as a native Setswana speaker, assumed responsibility for translating the Setswana transcripts to English.

Analysis of the data began in the field during data collection using Computer Assisted Qualitative Data Analysis Software (CAQDAS) to assist in the analysis process. A deductive approach was followed in conceptualizing an initial set of thematic areas and variables for qualitative analysis. The guiding SLF and findings from the literature review were used for this purpose.

Results

The findings are based on two variables, namely education, and employment (including income generation strategies). The objective was to find out whether the PAV facilities and services enhance the education, and employability strategies of the users. Positive impact was shown by enhancement in education or employability strategies in this study. The study also explored the level of the impacts, in order to find out the extent of the impact of PAV ICTs on the users.

Impact of PAV ICTs on Education

In this study, education is regarded as an increase in one's knowledge in the form of enhanced school work, improved ICT skills, and learning new things. The results of the study show a positive impact on the lives of users in terms of acquisition of ICT Skills, acquisition of online information for research and assignments, scholarship activities online, informal and formal communication.

Acquisition of ICT Skills

It was found that non-school going users of the library benefitted from the ICT skills imparted at the library. An example of ICT skills benefit was described as follows: "I started on the 10th of October, 2010, when I started working here. Somebody came to help us and teach us the computer but at the beginning I was taught by library staff" (Participant from Ramokgonami). Another example which demonstrates the benefit from ICT education was when a participant said, "Ah! I learnt on my own here in Ramokgonami, in this library. I was taught by the library staff here" (Participant from Ramokgonami). As demonstrated in these cases, the users above seemed to rely on the library staff to impart the knowledge of using computers. The results show that PAV users learnt ICT skills from the employees of the library and this is a positive impact, however, school going users attributed the acquisition of skills to schools and this emerged in the data. When users were asked where they obtained their ICT skills they said: "At school, here in the library they don't really train us on how to use the Internet, you have to come here with an idea of how to email, type, all of which I learned

from school" (Participant from Gaborone). Another participant said: "I learnt a little bit about basic computers, about logging in and logging off, in high school when I was doing Form 5" (Participant from Jwaneng). Another participant said: "I learnt myself, up until college when I got to learn from doing computer studies" (Participant from Kasane). From the village, another school going participant said: "The skills … I had a little bit of Computer Awareness when I was still at junior school but other than that through school I got to realize the basics of computers like word processing" (Participant from Ramokgonami).

The findings above emphasize that users who were not in school benefited from the skills provided at the library, however, those skills were very basic. This is further confirmed by the reports of younger users who did not need skills from the library staff and mentioned that, "… I had a little bit of Computer Awareness". It is apparent from the above quotes that the "basic" knowledge they brought to the library sufficed. Users in the quotations above refer to basic skills such as word processing, email, typing, logging in and logging off, and no reference is made to more complicated tasks. In addition, one participant attested to the availability of Microsoft Word and Excel lessons for novice users, when he said: "I personally had the basics before but I remember those months they had lessons for Microsoft Word and Excel…." (Participant from Jwaneng). According to the above excerpts, there was positive impact on the ICT education of the users but it was mostly limited to basic computer skills.

Access to Online Information

Users benefited from using the library for research and assignments. The following extracts illustrate what benefits were derived from using the library:

> When it comes to studies, I was using this (the ICTs from the library) a lot to get question papers to study. (Participant from Kasane).

> They (ICTs at the library) have been benefitting me very much because I did not pass English properly; you see . . . . Then I decided that if I can use these computers as sort of reading these books, it can help me a lot. I think I have benefited a lot because I got a "C" for English which I used to fail and I see that they have been beneficial. (Participant from Ramokgonami)

> Looking at the way of my training, there was no way these facilities could not have been important in my training. Like if we look at where I come from, like my yard exactly, there is no computer, there is no power. So the fact that these facilities were here I could always carry my work from school to here. I would research and I could even type my assignment here. I could even download my notes and any kind of take-home resources from school. (Participant from Ramokgonami)

> I like researching about things you see, so our study teacher used to tell us about things so the students used to tell him that he is lying so he told them to come and research (here at the library). When he gives assignments, I come to research you know. He even told us about these trucks that they use at the mines you know and he told us to come and research because we did not agree with him. (Participant from Ramokgonami)

> On the assignments, the course that I do is obviously on the net, I just type www.cip.com and they just appear, study resources and so on, so I just click where I want to go. I can access the exam papers and I can even get my assessment and the results. Even the

> answers for the exams just appear. (Participant from Gaborone)

The above quotations show that users benefited from the PAVs by searching and obtaining the information they needed. This activity adds to the positive impact of PAV facilities in the education of the users. The lack of books in school was mitigated by the presence of the PAV ICTs since students had more access to more sources using the Internet. Participants who benefited from the ICTs in terms of access to sources said:

> Yes, I would say they are useful … if you don't have enough books at school you are able to research …, you can search the Internet, you are able to search for the books and read and some have free tutorials in the net, you are able to research… because in the books you cannot access everything but here you can go further. (Participant from Gaborone)

Based on the quotations, users benefit from PAV ICTs in three ways; they have access to facilities, information online to supplement limited information in textbooks, as well as plenty of information for doing assignments and research in general.

Scholarship Activities Online

Activities performed in the PAVs included searching for scholarship opportunities in the library. It is clear from the data that they perceive the library ICTs to be very useful in terms of finding institutions, programs, and funding opportunities for their tertiary education. The following extracts serve as illustration:

> I opted to download the form of the university and I applied using the form that I downloaded . . . . I applied for different schools, some offered me a place there but I didn't go…I continued to apply, downloading stuff to use then posting it back to them. Last year … I applied again for the local institution, the institution offered me a place and that's where I have been studying. (Participant from Ramokgonami)

> Right now I just want to get back to school so I'm looking for a nice course to do like in the University of Botswana and maybe a combination of scholarship. (Participant from Jwaneng)

> I have come here searching for scholarships. (Participant from Kasane).

One participant from Ramokgonami described her use of the library ICTs in terms of furthering her education:

> I started with the idea of nursing so I searched about different levels of Nursing from different schools. And also schools by state and I started to narrow down to what I was looking for in a school. Then I started looking at specific schools and their programs…um from there I was able to select the schools I want to apply to. I was also able to email some of the advisors at the schools on programs I want to do. (Participant from Ramokgonami)

Informal and Formal Communication

Communication is regarded as a social impact in this study because the users reported new methods of communication that would not be possible without access to the Internet. Participants said they use PAV ICTs to communicate with friends via e-mail and Facebook and this can be classified as personal or informal communication. They also reported that they conducted interviews on Skype and retrieved bank statements, both of which can be regarded as formal communication.

A user who spoke in support of communication benefits said, "I would come here because I don't have Internet at home…so I come here every day" (Participant from Gaborone). Such quotations attest to formal and informal communication use: "usually I communicate with friends outside the country and I email the assignments that I have been given at school" (Participant from Ramokgonami). It can be summarized that the Internet available at PAVs has had a positive impact on the communication of users.

Impact of PAV ICTs on Employment and Income Generation

Employment and income generation strategies are regarded as economic benefits in this study. These can be categorized as those activities which are likely to generate income through jobs or business, and those activities which save money and the time of the users.

Time and Money Saving Activities

The positive economic impact for participants was apparent in the availability of free services. Examples include using printers and Skype at the PAV. Printers could be used for printing curriculum vitae at no cost for the user. This constitutes the first economic benefit of PAV ICTs. This was emphasized by the users when they said: "It is available and it is free …. In here it is free and you can stay as long as you want" (Participant from Gaborone). Another user, in support of the above statement, said: "Also imagine how much it will cost to go to South Africa for an interview, it will cost more than 2,000 and yet an interview on Skype here is free" (Participant from Gaborone). In the above quotation, the user of the PAV is benefiting twice in that he gets an opportunity to do a job interview on Skype (communication) and saves travelling money.

Another form of saving was a comparison between the traditional way of writing letters and the modern use of the Internet. As one participant put it, "Also this saves us money. Imagine writing a letter for a job on paper and posting it for P8.00 each and if I use Internet café I would pay P10.00 and this one is totally free. I save both time and money" (Participant from Gaborone). Not only is the user saving money, they are also benefiting from using modern facilities for communication. One user showed the usefulness of the facilities by saying: "It is convenient, you save a lot of time and there is a lot more information available on the Internet. It has actually changed my way of thinking" (Participant from Gaborone).

Online Job Related Activities

For the unemployed, the library and all its facilities form an important part of finding and applying for jobs. A list of employment-seeking strategies that were identified in the study include: using the Internet to communicate to prospective employers or schools, using e-mail for sending job application letters, using Skype for job interviews, and using printers for CVs. The following quotation illustrates the positive impact of PAV ICTs on the employment strategies of the participants:

> These facilities help me in such a way that …when you are here you can Google, you can search, actually let me say search for any job opportunities, so you do not need to go through a newspaper to find job openings. Some companies which have websites … post the jobs on their stuff. … I search, I find jobs, and I apply. I don't have to use the post anymore, I email from here, I do my CV here then I email it here. I am trying to get a job so they are really helping me a lot. (Participant from Ramokgonami)

The other type of employment benefit derived from the PAVs is work related. A user who was employed by a company in another country used the PAV to do his job. The user reported that: "Internet works as a link between the

company I work for here and its headquarters in South Africa. I work in the company itself to acquire information on the market and for research purposes" (Participant from Gaborone). In the quotations above, it is worth noting the shift from using traditional media, such as newspapers, to the Internet. This confirms that the new media has an impact on society and individuals' communication and job seeking methods. All the excerpts above support the fact that participants' benefit from the library in relation to the employment seeking strategies as established in the data.

Discussion

The results of the study revealed two major areas of positive impact are education and income generation strategies occasioned by the availability of ICTs in libraries or PAVs. Educational impacts can be subdivided into the development of ICT skills, access to online information, scholarship opportunities, and communication opportunities. Income generation impacts fall into two categories; time and money saving, and job related activities. The socio-economic barriers to ICT use in developing countries and the SLF thinking highlight the social and economic parameters (Duff, 2011; Heeks et al., 2010; Parkinson & Ramirez, 2006). To that end, the discussion of results is divided into educational, economic, and social benefits. This is in line with the purpose of the study which sought to determine the impacts of PAV ICTS in the lives of users.

Educational Benefits

Development of ICT Skills

The results show that there was positive impact in terms of ICT skills imparted; however, this was not the only positive impact. The second benefit from PAV ICTs was registered by young and school going users who reported that the PAV ICTs were beneficial for access to educational information and resources. Access had proved to be elusive to some distance education students in Botswana before PAV ICTs (Oladokun & Aina, 2011). This study has proven that one of the issues in the reported digital divide, which was explained in part as lack of access to the plethora of digital information (Duff, 2011; Gyamfi, 2005, Rezaian, 2007), is finally beginning to be resolved.

The other finding was that school going users acquired basic skills at school while non-school goers relied on the public library staff. Therefore, the ICT skills acquisition phenomenon reveals two types of users in the library with distinctly different needs based on their environments and socialization. Also, the school goers reported that they had already acquired basic skills and did not need the skills imparted in the library. In SLF thinking (Parkinson & Ramirez, 2006), non-school goers had a context in which some basic assets were missing such as the social and physical assets in the form of ICT education and facilities, while the school goers had exposure to them. The assertion by Duff (2011) that the digital divide leads to socio-economic stratification, is applicable here. The results revealed two types of users in the same facility and this has implications for the services and needs of the two user groups. The remnants of the digital divide in society are visible where non-school going users are concerned (Gyamfi, 2005).

Access to Resources

One of the variables in the SLF is capital assets under which physical assets falls. The fact that users had access to physical assets like computers and the Internet means that they were able to carve better livelihood strategies for themselves. Literature on poverty in Botswana (Hillborn, 2012; Lekoko & Morolong, 2007) confirmed that lack of facilities and poverty were barriers to access. PAV ICTs helps to curb these barriers to information technology.

Formal and Informal Communication

Formal and informal communication was reported by users from the four research sites.

The available ICTs have therefore had a positive impact on the users in that respect as shown in the discussion above.

To summarize, it has been established that with regards to education, the ICTs located in the PAV did have a positive impact in terms of imparting skills to older users. From this finding, it is possible that older users did not have the opportunity to learn ICT skills because when they were younger there were limited computers and Internet opportunities in the system (e.g. in schools, homes, workplaces).This was confirmed in the literature on the barriers of ICTs in Sub-Saharan Africa (Gyamfi, 2005; Maswabi et.al.,2011). Also, today younger users have other options in addition to public access, where the Internet is accessible; examples include Internet cafes and mobile phones (Grand et al., 2010). However, the library does seem to be very significant for non-school going older users. This is regarded as a positive impact in the lives of the users because they gained some knowledge or education from the venue staff and PAV ICTs.

It was also established that for younger and school going users, the opportunity to carry out educational activities and communication (both formal and informal) was a positive benefit. The facilities gave them educational opportunities free of charge and this constitutes economic benefits, while the mode of communication changed the traditional methods of doing business in society. The literature in Sub-Saharan Africa has long decried the lack of computer skills by most users in Africa (Bose, 2004; Lekoko & Morolong, 2007; Totolo, 2014), therefore, the evidence of the acquisition of computer skills among Botswana library users is quite significant in this study.

The positive impacts emanating from the library in relation to education include ICT skills imparted at the venue, availability of facilities for ICT related educational activities and communication channels. It can be concluded that the availability of library ICTs is slowly being incorporated in the educational process. It seems that external motivations to use the facilities are increasing the impact. There is evidence that school assignments requiring the use of the library ICTs encourage adoption and use of computers. The well-known history of Africa's lack of adoption and use of ICTs (Rice, 2003, Totolo, 2011), lack of ICT skills (Bose, 2004; Gyamfi, 2005), lack of ICT policy (Heeks, 2002), and ICT access issues (Grand et al., 2010; Lekoko & Morolong, 2007), is being challenged by the new developments which show positive ICT impacts. The positive results have been reported in eight country reports (Sey et al., 2013). The ICT4D literature strongly supports the notion that these intangible benefits are very important for closing the digital divide (Gomez & Panther, 2012).

Economic Benefits

The study has established the economic benefits are positive impacts on employment and income generating strategies for the users of PAVs. Users reported that they used the ICTs to communicate with existing or potential employers (e-mail; internet; websites); searching for jobs; registering on employment websites; updating CVs; and communication between the unemployed in their job seeking endeavours.

It was quite clear that users did not spend money to access services from the PAV. It has also been revealed that instances where participants use e-mail to send job applications, Skype to conduct a job interview, the Internet to perform job related activities, and the printer to get copies of curriculum vitas are evidence of positive impact derived from the available ICTs. These can be regarded as actual impacts of PAVs on the users. Using SLF analogy, the income generating activities and outcomes are visible in the study (Parkinson & Ramirez, 2006).

The PAV seems to have additional and more efficient ways for users to look for jobs compared to relying only on traditional media. The literature on Botswana mentioned poverty

(Hillborn, 2012) and lack of ICT facilities (Lekoko & Morolong, 2007; Maswabi et al., 2011; Totolo, 2014). However, the availability of ICTs is slowly changing the social, economic, and educational fabric of the Botswana society, with access to technology. Access to facilities is proving to be one of the key factors that contribute to potential usage of ICTs in the Botswana libraries. The SLF shows that facilities or physical capital is one of the catalysts in the provision of access which can lead to sustainable livelihoods and outcomes (Parkinson & Ramirez, 2006).

Further research is needed to establish the magnitude of the economic impacts. This study analyzed the economic benefits of ICTS and established the existence of positive impacts, however, there is a need to juxtapose the impacts to the statistics on unemployment in Botswana. The recent Botswana Census established that the average unemployment rate was estimated at 17.8 percent and 116,388 persons lived below a dollar a day in 2009/10. According to the Botswana statistics the age group distribution indicates that the highest unemployment rate of 41.4 percent is among the 15-19 years age group followed by the 20-24 year age group at 34.0 percent (Statistics Botswana: Botswana Core Welfare Indicators (Poverty) Survey 2009/10, 2011). Therefore, the positive impacts registered in this study need to be increased in order to improve poverty and unemployment. This is clearly a policy implementation issue as suggested in the literature (Heeks et al., 2010).

Social Benefits

A trend amongst users in this study developed where preference seemed to be given to modern ways of conducting business online. Users preferred communication on the Internet such as Skype, e-mail, and doing examinations online rather than traditional face to face methods. Indeed society is changing to adopt ICT related business and social activities because of exposure to ICT facilities and this can be regarded as positive impact. Literature on the digital divide discussed how those who did not have access were marginalized (Duff; 2011; Gyamfi, 2005; Oladokun and Aina, 2011), therefore access to ICTs in the PAVs is beneficial.

The literature on the library system in Africa and Botswana before the advent of ICTs showed that the libraries were underutilized and under resourced (Isaak, 2000; Maswabi et. al., 2011; Mutshewa et.al. 2010). Although this study was not investigating the impacts of the library on users, but rather the impacts of the newly introduced ICTs, it is interesting to see the uptake of ICTs by the users in a library system that was not popular before. Also, the use of Web 2.0 tools such as Skype is a breakthrough in the lives of PAV users. Web 2.0 tools are well known for extending access and enhancing education (Al-Aufi & Fulton, 2014; Badea, 2014), therefore its use in the PAVs is evidence of positive impact. However, this study was done on a small scale using qualitative research and it cannot be generalized to the whole population. The study has achieved its objective of uncovering rich qualitative data about the users of PAVs. However further research covering the whole country using both quantitative and qualitative data would complement this study since those results can be generalized to the entire population.

Recommendations

The study revealed educational, social, and economic benefits of ICTs, however, the level of impact tended to border on basic computer skills. It is recommended that advanced ICT skills such as website design be offered to users in order to stimulate income generation and improve livelihoods of both the unemployed and the school leavers through self-employment.

Library personnel, as information mediaries, play a key role in the success and impact of the library ICT facilities and services. The venue staff mostly catered to the needs of novice users.

However, in view of the availability of computer skills in schools and the proliferation of hand held gadgets with Internet access, libraries might cease to attract young users. It is recommended that staff be equipped with advanced ICT skills so as to entice young users to the library and to offer them more opportunities for learning survival skills in a world dominated by ICTs. Continued training is needed to ensure that staff have skills to train users and assist them as they grow more sophisticated in their ICT and information competence. It is strongly recommended that the training-the-trainer program receives priority attention. In addition to advanced ICT skills, it is recommended that the softer skills required for effectively training users, should also receive attention. Finally, staff should be trained in entrepreneurship – this would equip them to assist users more effectively in utilizing the library ICTs in employment and income generating strategies.

ICT policy failure has characterized most of sub Saharan Africa before, as discussed above. The positive impacts discussed above depend on the continuity of ICT access once the donors stop the aid. It is recommended that governments should enact the right policies to ensure maximum benefit from the digital era.

Conclusion

The present study sought to find out whether PAV ICTs, available free of charge for users in Botswana, had any impact on their livelihoods. The use of SLF as a lens indicates that the investigation of the phenomena hinges on sustainable livelihoods geared towards poverty reduction. The study established three broad categories of positive impacts: educational, economic, and social impacts.

Educational impacts include skill acquisition and access to educational materials and communication. Although there is no doubt that the positive impacts of ICTs are likely to increase the education and income generation strategies of the user, there is a need to mention the level of the impact. This study has revealed that the skills users benefited from PAVs were basic. If the skills are basic, they are useful for logging in and out, typing, writing e-mail etc., however, if users are to develop business ideas and generate income, there is a need to do more sophisticated tasks using ICTs. In this study, it appears that users functioned with the most basic skills; therefore the level of the ICT skills impact is bound to be minimal albeit present. In addition, the acquisition of skills by non-school goers in PAVs has shown that there are two types of users in the library, therefore they have different needs. Using the SLF methodology helps to explain the two distinct environments of the school goers and the non-school goers, and this should inform the tailoring of an information skills program in the library system.

In terms of economic benefits, the PAV ICTs positively impacted both job seekers and those who were employed. Those who were seeking jobs used the PAV to do so and those who preferred to work online for their employers also benefited. This is a clear indication of an opportunity emanating from the use of PAVs. According to the SLF, economic impacts ideally, should lead to a sustainable livelihood and possible income generation. Longitudinal studies can be helpful in determining whether in the long run, the economic benefits shown in this study will lead to a sustainable life and poverty reduction.

The other impacts revealed in this study were social benefits. It appears that the PAV ICTs are beginning to transform library users in terms of communication and conducting educational activities. However, this study was qualitative in nature; therefore, more studies are needed to explain further the social revolution that seems to be taking place amongst the users of PAV ICTS. The findings in this study are instrumental for showing the benefits of ICT access in society but the magnitude of the change will manifest itself with more exposure to ICTs.

The above assertion has a bearing on policy formulation and implementation. Earlier in this paper, the Vision 2016 policy was discussed and was shown to have minimal impact in the Botswana National Library Service, since none of the libraries were fully equipped with technology before donors came. Therefore, the positive impacts realized here will continue if the Botswana Government continues to enact and implement the right policies. The almost dysfunctional library system reported in the literature also has a bearing on the uptake and use of information for generations to come. The study concentrated on the positive impacts of ICTs in the Botswana society. Further studies could concentrate on the negative impacts and suggest ways of overcoming such in order to advance the evident technology benefits as discussed in this paper. This study also dealt with the impact of ICTs, so future studies could analyze overall impact of all library services on the user's livelihood strategies. Further scrutiny of the Botswana ICT policy implementation context will enhance the present study.

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