

## Technology Adoption at the University of Botswana

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### Abstract

Technology adoption in the Botswana higher education system has been a priority for many years. The implementation of these technologies has been spurred on by the educational policies developed in the country post-Independence. These policies promote technology as a way for all Batswana to access education. Since independence in 1966, a technology adoption and diffusion system has been proposed and introduced. Prior to 1966, Botswana was a British colony and education generally was a low priority with only some people having access. During the colonial period the number of students in schools often vastly outnumbered the teachers. After independence and with the new policy priority of Education For All (Letshabo, 2000), Botswana was faced with the need to train teachers quickly to meet the new expected student/teacher ratio. In addition, the government attempted to develop an infrastructure nation-wide to facilitate technology adoption and diffusion in all education systems including the university. However, despite the policies and the attempts to develop infrastructure, adoption of e-learning technologies, especially at the University of Botswana, has been slow. Historical and contextual factors are, in part, to blame. The purpose of this paper is to reflect on these historical and contextual circumstances both during the colonial period and after independence.

*Keywords:* technology adoption, Botswana education system, colonial period, British colony, electronic learning, educational technology.

### Introduction

Technology adoption in the Botswana higher education system has been a priority for many years. The implementation of these technologies has been spurred on by the educational policies developed in the country post-Independence. These policies promote technology as a way for all Batswana to access education. Since independence in 1966, a technology adoption and diffusion system was proposed and introduced. Prior to 1966, Botswana was a British colony and education generally was a low priority with only some people having access. During the colonial period the number of students in schools often vastly outnumbered the teachers. After independence and with the new policy priority of Education For All (Letshabo, 2000), Botswana was faced with the need to train teachers quickly to meet the new expected student/teacher ratio. Many of these teachers were taught through correspondence distance education using print based materials. Technologies like radio and television were used at that time but were not as effective as was expected.

After the national education policies (Republic of Botswana, 1977, 1993, 1994), National Development Plans: 9 and 10 (Republic of Botswana, 2003, 2008), Vision 2016 (Republic of Botswana, 1997), and Maitlamo National Information and Communication Technology (ICT) Policy (Botswana's Maitlamo Draft National ICT Policy, 2005, Botswana Maitlamo, 2007) were developed, the focus shifted to the possibilities of e-learning technologies. The University of Botswana developed its Information and Communication Technology policies based on these national education policies and implemented the idea of technology adoption and diffusion for teaching and learning in the university classroom and for

distance learners (Uys, 2001). In addition, the government attempted to develop an infrastructure nation wide to facilitate technology adoption and diffusion in all education systems. However, despite the policies and the attempts to develop infrastructure, adoption of e-learning technologies, especially at the University of Botswana, has been slow. Historical and contextual factors are in part, to blame. The purpose of this article is to reflect on these historical and contextual circumstances both during the colonial period and after independence. The background to the problem that led to this and the rationale are outlined in this paper.

### **Background Information - Botswana**

This section describes Botswana's political status, geographical location, social status, economic status, and the history of education in the country because these factors are all relevant to the adoption of technology. The adoption and diffusion of technology in teaching and learning were proposed and implemented after the Botswana independence with policy guidelines.

#### **Political Status**

Bechuanaland was a British Protectorate for almost eighty years before it became independent in 1966. In 1966, Botswana established a non-racial democracy that maintained freedom of speech, freedom of the press, freedom of association, and equal rights for its citizens (Ntseane, 1999). Scholars such as Beaulier (2003) and Molomo and Somolekae (1999) praised Botswana for its good governance. Botswana was a multi-party democracy, and has experienced stable political conditions since gaining its independence in 1966 as compared to other Sub-Saharan African, particularly Southern African, countries (Nage-Sibande, 2005). According to Parsons (1999), since 1966 Botswana has successfully maintained political and economic stability for almost 35 years compared to other countries in Sub-Saharan Africa, and is regarded as a peaceful country.

#### **Geographical Description of Botswana**

Botswana is situated in Southern Africa, with a total of 542,000 square kilometers. It shares borders with South Africa, Namibia, Zambia, and Zimbabwe (see Figure 1.1). Botswana is a completely landlocked semi-arid country (Jefferis & Kapaletswe, 2008; Jefferis & Nemaorani, 2013). Most of the Southern and Western semi-arid areas are covered by the Kalahari Desert, while the eastern, northeast, and east-south regions are fertile. Botswana is mostly flat with gentle undulations and occasional rocky outcrops (Ntseane, 1999), and the Okavango River in the northwest drains from Angola. The Makgadikgadi Pans are large plains in the central and northeast of Botswana, and the rest of the country is covered with thick layers of sand in the Kgalagadi Desert (Ntseane, 1999).



Figure 1.1. Map of the Botswana Regions and Neighboring Countries

Source: Central Intelligence Agency's, *The World Factbook*, 2004 (Copyright Public Domain)

Nage-Sibande (2005) noted that before and after Botswana's independence in 1966, the main means of transport from the north and Zambia is a railway line connecting Zimbabwe to the south of Botswana and South Africa, whereas in the eastern and western regions the main means of transport is only by four-wheel drive trucks due to sandy and dirt roads. Many print-based distance education learners live in these isolated areas, and attending residential sessions at the University of Botswana is often a problem due to bad, sandy roads that take long to traverse by car. Distance education learners from the northeast area, on the other hand, travel easily because their roads are good, and roads and railway lines were linked.

The weather conditions in Botswana determine the density of the populated areas (Botswana Central Statistics, 2000). The density of Botswana's population is concentrated in the eastern regions as compared to the sparsely populated southern and western regions (Republic of Botswana, 2003; Nage-Sibande, 2005; see Figure 1.1). Botswana is large geographically, with a relatively low population density of 2.3 persons per 1000 square kilometers (Nhundu, & Kamau, 2002). According to Akenpelu (1995) and Ojedekun (1999), 80% of Botswana's land is arid, with a small population scattered throughout. Botswana's population since independence in 1966 has been growing steadily, and a population census has been periodically conducted every ten years since 1971, until very recently in 2011. According to these researchers, although the population of rural areas is higher than the urban areas as noted in the 1991 census and (see Figure 1.1), due to rural migration the capital city of Gaborone's population is expectedly high, followed by Francistown.

The legacy of colonial education means that Botswana's education system was poorly resourced and unsystematic. The issue is how to make education accessible in these regions because of their geographical situations, population density, and distance from the four neighboring countries (see Figure 1.1). The Botswana government developed national policies aimed at making education available and accessible to all in Botswana, to reach all geographically scattered areas equally, including remote rural

and urban regions (Botswana Maitlamo Information and Communication Technology Policy, 2007; Republic of Botswana - Revised National Education Policy, 1994; Republic of Botswana National Development Plan - 9, 2003/4, Republic of Botswana National Development Plan - 10, 2008).

### **Social Status**

At the time of independence in 1966, Botswana's social and infrastructure developments were extremely undeveloped (Jefferis & Kapaletswe, 2008; Jefferis & Nemaorani, 2013). The government of Botswana used revenues derived from the mining sectors to fund social provisions such as schooling, health, safe clean water, roads, and the transport of public goods. Considerable developments were achieved through these funds such as developing universal primary and junior secondary schooling, health care, clean water supplies, roads, and transportation (Jefferis & Kapaletswe, 2008; Jefferis & Nemaorani, 2013). On the other hand, Botswana's main setback was as a result of the spread of HIV/AIDS, it being the most affected country in the world. Botswana has managed to fight the HIV/AIDS pandemic through a number of strategies, such as making available free anti-retroviral and HIV/AIDS tests. The HIV/AIDS pandemic affected education systems in Botswana: many lecturers, teachers, students, and parents became ill and died. Some students became orphans, making it difficult for them to continue with their education.

Socially, the two languages spoken in Botswana's education systems are Setswana and English (Nage-Sibande, 2005). Botswana, as a former British colony, used English as the main language of instruction in schools, technical institutions, colleges, and the University of Botswana. Although English was the main language of instruction in the education system of Botswana, students generally have problems in English language literacy. English language is taught from kindergarten to the university level, but even students at the university level have problems with the language.

### **Economic Status of Botswana**

At independence in 1966, Botswana was rated the poorest country in Africa (Ntseane, 1999). The economic situation in Botswana changed after its independence due to the discovery of minerals in 1967 and the diversification of the economy. Botswana's diamond exports exceeded other minerals in export value, as the country became the largest producer of diamonds in the world (Totolo, 2007). This is the reason why Botswana has had one of the world's highest economic growth rates since independence compared to other African countries. The United Nations has rated Botswana as a middle-income country based on Gross Domestic Product (GDP) growth (United Nations in Botswana, 2005, cited in Totolo, 2007). Botswana's main sources of income are mining, agriculture, tourism, and manufacturing (Jefferis & Kapaletswe, 2008; Jefferis & Nemaorani, 2013). Although according to Jefferis and Nemaorani, the Botswana GDP in some sections decreased while others increased in 2012, these had an impact on economic growth, which affected the cost of education systems in Botswana and employment rate that could facilitate payment of education.

These percentages are reported on Table 1.1 comparing Botswana's GDP in 2007 and 2012. Botswana's highest source of income was the mining sector at 44% in 2007, which decreased to 13% in 2012. Botswana's economy was fundamentally resource-based, supplemented by other areas such as government at 16% in 2007 to 14% in 2012; trading, hotels, and restaurants at 11% to 18% increase; and business at 10% to 15% increase. Beef used to be among the main exported products to the Western world but since the outbreak of foot and mouth disease, cattle are no longer being locally slaughtered and processed as fresh meat. During these times, people in Botswana used to sell their cattle and were able

to finance educational expenses for themselves and their children. The diamond business in Botswana was affected by the 2008 economic recession, and the price of diamonds has dropped, having drastic effects on the economy. Consequently, there is a need for the Botswana government to find ways of maintaining their economic status through a major source of income. Although some sections showed an increased rate, these still did not make any drastic progress in use of technology (Jefferis & Kapaletswe, 2008; Jefferis & Nemaorani, 2013).

Table 1.1  
*Structure of the Botswana GDP, 2006/07, and 2012*

<b>Botswana Source of Income</b>	<b>2006/07 in %</b>	<b>2012 in %</b>	<b>Difference in %</b>	<b>Effect</b>
Water and Electricity	3	1	2	Decrease
Transport and Communication	4	6	2	Increase
Agriculture	2	2	0	None
Trade, Household, and Restaurant	11	18	7	Increase
Social and Personal Services	4	7	3	Increase
Mining	44	13	31	Decrease
General Government	16	14	2	Decrease
Manufacturing	4	6	2	Increase
Construction	4	8	4	Increase
Banks, Ins. (Fin.) and Business Services	10	15	5	Increase

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Source: Central Statistics Office (CSO) (Jefferis & Kapaletswe, 2008; Jefferis & Nemaorani, 2013)

### **History of Education in Botswana**

Before independence in 1966, when Botswana was a British colony, the education system was governed, administered, and managed by the British (Monyatsi, 2002). The colonial government invested little in formal ‘western’ education, and the education that existed was developed and necessitated by missionary projects and the need for literacy skills to promote Bible reading (Mafela, 2010). However, while the colonial authorities did establish some schools, they were few in number and tended to focus on producing a limited number of people for the few available positions for employment in the Colonial Government. Secondary education was largely neglected. As Mafela (2010) argues: “the British colonial government sought to use education to address the habits of industry, and to offer basic literacy to enable Batswana to perform clerical and semi-skilled tasks” (p. 69) specific to the lower level jobs they offered Batswana. Monyatsi (2002) concurs that the education system was poorly developed at the time

independence was established in 1966. While the colonial government did not fully control the education system, it implicitly directed educational development through grants to mission societies. As education became more entrenched, the colonial government realized the value of employing locally educated civil servants.

Education during the colonial period did not address the needs of Batswana but rather emphasized the needs of the colonial power (Major & Tiro, 2012). The primary education that did exist was of poor quality. As Major and Trio (2012) suggest, the British government was not prepared to invest in teacher preparation. Instead, teachers were sent to neighboring countries like South Africa and Zimbabwe for training. It was argued that, "primary teacher education was indeed of low quality as the student teachers admitted at these colleges were mostly standard seven leavers and junior certificate (Form 3 and later Form 2) failures" (Major & Tiro, 2012, p. 64).

In the early 1960s, the number of schools and students gradually increased. By independence, there was a need to train teachers quickly due to the increased number of students in schools in the period between 1960 and 1965 (Nage-Sibande, 2005). These teachers were trained through correspondence programs as a distance education mode, which was fully print-based. The print-based mode focused on hard copies of learning materials posted through the mail to individual teacher learners, with additional material being taught through radio and television lessons (Nage-Sibande, 2005; Tau, 2008). Jones (1979) said that the Salisbury Correspondence College in Southern Rhodesia offered an intensive program intended to expedite the supply of teachers to the increasing number of schools. In other words, teachers were trained quickly to meet the increasing demands and needs of individuals' equal access to education. At that time, there were not many schools, and most of the schools were in the southern part of the country. The training of teachers was done in neighboring countries like South Africa, and Zimbabwe. The other issue found was that the colonial government did not use local Batswana people in highly trained and qualified jobs. After independence, this left Botswana with unqualified people for jobs that needed highly trained staff. In addition, the colonial government did not invest in Botswana's technology infrastructure.

Following independence, the government of Botswana's goal was still to offer equal Education For All (EFA) (Letshabo, 2000; United Nations Educational Scientific and Cultural Organization (UNESCO), 2000). Education For All (EFA) was a global commitment by all countries to provide quality education, and was one of the Millennium Development Goals (MDG) (Letshabo, 2000). According to Letshabo (2000), because EFA's goal was to improve the quality of education, Botswana embraced EFA's goals in order to promote quality within its education system. In 1973, the Botswana Extension College was established as part of the Ministry of Education, which was incorporated into the Department of Non-Formal Education, and created in 1978 (Tau, 1997). The Botswana Extension College and Department of Non Formal Education issued several important reports and policies with the goal of ensuring equal, accessible, and high quality education for Botswana's students.

Furthermore, the government passed two major national education policies as initiatives for providing universal access to education and promoting quality education. The National Commission on Education was first passed in 1977. This policy led to the establishment of the University of Botswana in 1982 (Kamau & Selepeng-Tau, 1998; Tau, 1997) until 2012 when Botswana University of Science and Technology was opened in Palapye. The policy was revised in 1992/93 and became the 1994 Revised National Education Policy. Additionally, the long-term National Vision 2016 (1997) was implemented as a means to educate the nation by 2016 to be knowledgeable of and proficient with technology.

The long-term Vision 2016 (1997) plan was also based on evaluating what the Botswana government had

accomplished in 50 years from 1966 through to 1997 and beyond to 2016. The aim was to identify the challenges, successes, and strategies encountered throughout the 50 years since Botswana's independence and to use this knowledge to improve the present Vision 2016. One of the most important Vision 2016 objectives was to have an informed, educated, and computer literate nation by 2016. It also emphasized the role of computers and the internet in ensuring the quality of education and universal access to education, with computer and internet access being made available to schools and tertiary education systems. This was an opportunity for all citizens of Botswana to access universal quality education as an informed and knowledgeable nation, and to be aligned with global changes.

The adoption of the Revised National Policy on Education (1994) immediately led to the establishment of the Centre for Continuing Education at the University of Botswana and the Botswana College of Distance and Open Learning as a semi-autonomous and statutory organization set up through an act of Parliament. The Centre for Continuing Education and Botswana College of Distance and Open Learning were established as the main agencies of distance education and open learning to facilitate learning through modern technologies in Botswana, hence the beginning of technology adoption and diffusion in Botswana higher education system. The 1994 Revised National Education Policy did not take care of Information and Communication Technology Policies although the Report of the National Education Policy (1977) emphasized and proposed that technology be taught and used in Botswana's learning institutions, hence lifelong learning.

The Botswana National Maitlamo Information and Communication Technology Policy was initiated and developed in 2005 (Botswana Maitlamo Draft National Information and Communication Technology Policy, 2005). The policy was to be used as "a vehicle for change and assist in achieving Vision 2016 and other national development targets" (Botswana Maitlamo National Information and Communication Technology Policy, 2007, p. 4). According to the report of the Botswana National Maitlamo Information and Communication Technology Policy of 2007, the Botswana government, through the Ministry of Education, created an initiative through the Thuto-Net program by networking and connecting all schools and tertiary institutions so that all citizens could access equal education through flexible means to satisfy the National Education Policies.

### **Development of Distance Education**

Prior to the Centre for Continuing Education, Botswana College of Distance and Open Learning, and Botswana Extension College, mandates were established to offer courses to out of school youths and adults at secondary school levels. The focus was on a distance education mode of delivery using print-based materials, radio broadcasting, and occasional face-to-face (f2f) mode in the study centers (Nage-Sibande, 2005; Nhundu, & Kamau, 2002; Sibande, 2011; Tau, 2008). The Ministry of Education incorporated Botswana Extension College into the Department of Non-Formal Education in 1978. Due to some issues with resources, infrastructure, expertise, and learning materials, the Department of Non-Formal Education became the Botswana College of Distance and Open Learning in 1996/98 (Nage-Sibande, 2005; Nhundu and Kamau, 2002; Peter, Tau and Mensah, 2006; Tau, 2008).

Botswana College of Distance and Open Learning, was the first open and distance learning University in Botswana, and it promotes open access to Education For All (EFA) in line with national policy objectives. However, despite satisfying national policies and aiming at lofty goals, researchers have observed that the distance education learners and even the lecturers at the University of Botswana have negative attitudes towards distance education (Kamau, 2007, 1999; Masalela, 2009, 2011; Mutula, 2002; Sikwibele & Mungoo, 2009; Thomas, 2008).

### 1.3.7 University of Botswana

The Universities of Bechuanaland (Botswana), Basotholand (Lesotho), and Swaziland amalgamated in 1964 to reduce the reliance on external assistance of the three countries in the South African apartheid era (Letshabo, 2000). It was four years after Botswana's independence in 1966 that the Universities of Botswana, Lesotho and Swaziland were established as a joint university. However, in 1975 Lesotho withdrew and formed its own national university, which led to the establishment of the University of Botswana and Swaziland. Then, after several years together, the University of Botswana and Swaziland were divided into two separate national universities. Seven years after the separation from University of Swaziland, and in 1982 the University of Botswana was established.

The University of Botswana was a response to a demand from the two national education policies of Botswana, the National Commission on Education, (1977) and the Revised National Policy on Education (1994) to solidify its distance education activities into the Centre for Continuing Education. It also responded to the National Development Plan 9/10 (2003, & 2008); Human Resource Development Council (2014), which was called the Tertiary Education Council (2008a & b); Vision 2016 (1997); and the Botswana National Maitlamo Information and Communication Technology Policy (2007). The University of Botswana was to offer the same f2f courses through distance education to enable the community at large to access higher education courses and programs. The University of Botswana "envisioned that the University would offer its programs through both modes, the classroom f2f and distance education with online learning, and would thus become a dual mode institution" (Tau, 2008, p. 203). It was through these historical developments of Botswana's education system to the establishment of the University of Botswana that it currently offers some of its programs through both f2f and distance education modes, and is attempting to provide online learning.

The University of Botswana initiated distance education programs in 1982, offering a certificate in adult education through the Department of Adult Education in collaboration with the Department of Non-Formal Education. It was within this background that the University of Botswana established the Centre for Continuing Education and introduced distance education in 1991 (Sibande, 2011; Tau, 2008). The University of Botswana's Centre for Continuing Education has four units, the Extra Mural Unit, Distance Education Unit, Public Education Unit, and Technical Support Unit, which launched a Diploma in Primary Education in 1999 (Kamau & Selepeng-Tau, 1998; Tau, 2008).

The distance education mode of delivery at the University of Botswana was print-based with audiocassettes and f2f sessions. The Centre for Continuing Education mainly worked collaboratively with the Faculty of Education and the Faculty of Business to train instructors on distance education delivery methods.

In 1999, the use of eLearning technology was initiated at the University of Botswana in the absence of a national Information and Communication Technology Policy, and implemented in 2001 (Mutula, 2002). University of Botswana instructors were given professional development and trained in-house by the Centre for Academic Development in the Department of Educational Technology, through workshops, seminars, and conferences to facilitate the use of technology in teaching and learning. Although it took Botswana almost 50 years from independence in 1966 to 2016 to reach the present state of technology use in schools, colleges, universities, libraries, individuals, and government departments, it has by no means met the technology goals. In addition, it took the University of Botswana 15 years, from the

implementation of eLearning technologies in 2001 by adopting and diffusing for using eLearning technology in teaching and learning, to reach the current state in 2016. Technology is available on campus and instructors are trained through the Centre for Academic Development to adopt, diffuse, and use technology for teaching and learning f2f to online. However, despite many gains, policy developments, technology infrastructure, and capacity building, technology use is still minimal and decreasing at a low level use.

Studies have revealed that after the implementation of eLearning technology the adoption and diffusion of technology innovation was low at the University of Botswana (Masalela, 2011; Shemi, & Mgaya, 2002; Thomas, 2008). Similarly, Dintoe (2010) found that the use of technology in schools was a challenge due to the lack of technology infrastructure, and a lack of trained human power, exacerbated by poor living conditions in rural areas. Totolo (2007) also found that school principals in Botswana had similar issues such as lack of proper training and techno-phobia, that is, fear of the use of computer technology for teaching and learning. This meant the introduction, implementation, and use of technology both at the University of Botswana and in schools has been hampered by historical and contextual factors. The challenge was made even more difficult by the fact that Information Communication Technology Policies were not elaborate enough to guide the processes of diffusion and adoption of technology in Botswana's education system.

The purpose of collaboration of the University of Botswana's departments, the Centre for Continuing Education, and faculties was to change some courses and programs from f2f offering to distance mode and later to online learning in order to increase access to higher education in the remote areas of the country (Tau, 2008, p. 203). The business and specific subject area skills requirements were foreign to the governance and the management of existing systems, thus causing conflict with academic freedom, and creating difficulty in maintaining effective educational delivery mechanisms with constant administration and operational problems (Tau, 2008, p. 204).

Instructors need appropriate policies to guide them when they adopt an innovation, as in the case of the University of Botswana integrating distance education technologies into core operations (Masalela, 2011; Mutual, 2002; Thomas, 2008). The University of Botswana developed reports and policies that were in line with national policies and strategies, and aimed to increase access to all its programs and courses to achieve Education For All. This is noted in the University of Botswana strategic plan, *University of Botswana beyond 10,000: A strategy for growth and shaping our future: a Strategic Plan to 2009 and Beyond*, which according to Kamau (2006) means that the university is committed to offering its programs through online learning for distance education. The aim was to increase student enrolment to 10,000 or more by 2009 (University of Botswana, 2000, 2008a). The 1997/98-2002/03 University of Botswana Development Plan coincides with the National Development Plan 8 (1997/98) in that the University of Botswana's purpose was to educate the nation within an atmosphere of academic freedom, while allowing critical and free enquiry (University of Botswana, 1999). To achieve its mission, one of the University of Botswana's strategies was to provide continuing education in order to equip students with life-long skills to cope with existing and future problems in a rapidly changing world. It was noted in the National Development Plan 9 of 2002/2003 that the emphasis has been placed on equipping learners with skills to enable them to enter into self-employment as well as create an opportunity for lifelong learning (Republic of Botswana, National Development Plan 9, 2003). The University of Botswana is a dual mode institution, and to achieve its distance education mandate of making higher education accessible to the nation, educational technology driven distance education was the way to go.

The University of Botswana's instructors, having to integrate distance education or adopt and diffuse technology into their f2f courses felt they were forced by University of Botswana administration to implement national education policies on Information and Communication Technology (Masalela, 2011). The Distance Education Mainstream Policy in 2005 was developed to incorporate a distance education mode of delivery into the University of Botswana operational systems. Prior to this policy, the eLearning technologies used for distance education were video conferencing and audiocassettes, print-based materials, and f2f tutorial sessions done occasionally at central study centers. The University of Botswana, along with the Centre for Academic Development, trained academic teachers on how to incorporate eLearning technologies and Learning Management Systems such as WebCT, Blackboard, and Moodle. The Adult Education Department, being one of the University of Botswana departments offering distance education, was expected to be one of the early adopters of eLearning at the University of Botswana. The Centre for Academic Development at the Department of Educational Technology was responsible for re-skilling instructors. The following section describes the Department of Adult Education in the Faculty of Education at the University of Botswana.

### **Department of Adult Education**

The Department of Adult Education is located in the Faculty of Education. It originated in the early 1980s from the Department of Non-Formal Education in the Ministry of Education offering courses to adults, as was outlined in the policies, as a continuing education for lifelong learning activity (Republic of Botswana, Education Policy 1977; Republic of Botswana, Report on the Commission of National Policy on Education, 1993; Republic of Botswana, Revised National Policy on Education, 1994; Republic of Botswana Vision 2016, 1997; Republic of Botswana National Development Plan 9, 2003; National Development Plan 10, 2008; Botswana Maitlamo National Information and Communication Technology Policy, 2007).

Certificated programs were designed and offered to adults at work to advance their skills and knowledge. The adult education certificate program was later moved to the University of Botswana in 1982 from the Department of Non-Formal Education and, in addition, offered diploma courses on adult education. Since adults have responsibilities such as work and family it was proposed to offer the program through distance education to allow flexible learning.

The Department of Adult Education instructors and professors were expected to use technology in teaching their distance education courses which were previously offered through the f2f mode (See Appendix). It was with this understanding that eLearning technologies were introduced and implemented in 2001, as evidenced by Mutula (2002) in his study on the use of electronic media in education. Yet, preliminary studies conducted on the use of eLearning at the University of Botswana for teaching and learning was found that instructors were resistant and thus showed a low rate of adoption and diffusion of innovative technology use (Eyitayo, 2005; Masalela, 2011, 2009, 2006; Thomas, 2008).

### **Conclusions**

This paper reflected on historical and contextual circumstances both during the colonial period and after Botswana independence in 1966 on technology adoption in Botswana education systems focusing on University of Botswana. It was after Botswana's independence in 1966 that national education policies were developed focusing on the concept of Education for All (Letshabo, 2000). The Botswana national education policies emphasized the idea of technology use in education systems to facilitate access to education.

Technology adoption and diffusion was proposed by Botswana government after independence to try to reach all students. The University of Botswana, following these national policies devised a plan to adopt technologies within the university system. The main target of these policies was to train teachers and to upgrade skills for adult learners. However, despite a strong policy environment, the University of Botswana experienced many challenges with technology adoption and diffusion and rates of adoption remain extremely low. It was reported by Jefferis and Nemaorani (2013) that internet use in Botswana showed that out of 100 inhabitants there were only seven users. At the University of Botswana programs, electronic and educational technologies were available on campus and the government of Botswana had spent money based on its policies to develop Information and Communication Technology infrastructures, but use of technology at the university was very slow and even decreasing despite being available on campus. The argument made in this paper is that technology adoption in Botswana, particularly at the University of Botswana, has been influenced by the historical and contextual circumstances. The lack of technology infrastructure has resulted in a context where there is little technology use outside the university. This lack of technology culture has contributed to fears of technology use and behaviors of avoidance. Instructors and students were not using the technology available because technology was not something that is prominent in their lives. Despite all developments on policies, technology adoption and diffusion infrastructures, professional development for lecturers at the university education system, little progress has been made and there is need to further explore on technology use at the University of Botswana.

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**APPENDIX: Faculties and Departments Offering Courses f2f to Distance Education - Purposeful  
Sampling Guiding Tool: Participants**

<b>Faculty</b>	<b>Departments</b>	<b>Courses</b>	<b>Instructors</b>	<b>Classroom YES/NO</b>	<b>PRINT/ONLINE MEDIA YES/NO</b>	<b>Distance Education YES/NO</b>
BUSINESS	Accounting Finance Management Marketing	YES	YES	YES	YES	YES
EDUCATION	Department of Adult Education	YES	YES	YES	YES	YES
	Primary Education			YES	YES	YES
	Humanities			YES	YES	NO
ENGINEERING AND TECHNOLOGY		YES	YES	YES	YES	NO
HEALTH SCIENCES		YES	YES	YES	YES	NO
SCIENCE		YES	YES	YES	YES	NO
SOCIAL SCIENCES		YES	YES	YES	YES	NO

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