

1 SCOPE OF THE RESEARCH

1.1 Introduction

Literature shows that the shift from mail, radio and telephonic modes of distance learning to the electronic internet based mode has potential benefits (Kamanja, 2007). It has been predicted that the impact of the internet on distance and online education will result in benefits such as wider reach of learners who might have been disadvantaged by geographical locations and distance (Raper, 2008), greater flexibility and interaction (Kamanja, 2007) and increased convenience for distance and on-line learners. However, because of issues associated with the digital divide, many potential learners have not enjoyed the benefits as might have been expected. As a result, the digital divide has become one of the most contentious issues in the contemporary debates as it cuts across the socio-economic spectrum of every society. This study confirms that the digital divide, in its various manifestations, still poses a variety of challenges for online learners.

Furthermore, this study validates the need for more research on learner support strategies that are consistent with the challenges and the nature of the online environment today. The researcher contends that learner support models that were developed prior to, and during the advent of the internet may be inadequate as they are not consistent with the nature of the internet today. I, (the researcher) contend that Web 2.0 technologies could play a significant role as components of meaningful support interventions for online learners if put to some innovative use.

1.2 General Statement of the Problem

Since 1994, the government of Botswana has developed several policies (The Revised National Policy on Education (RNPE) of 1994, the Vision 2016 Policy (1997), and the Maitlamo national ICT policy of 2005, which among other things, inform and direct efforts to increase access to education. It would seem that, prior to these policies being made, there was no explicit guide about the integration of ICTs, and that, as a result the integration of ICTs was improvised, individualistic and not necessarily coherent with the aspirations of the country's educational system.

The Botswana College of Distance and Open Learning (BOCODOL) has made strides towards making the tenets of the aforementioned policies a reality by developing and piloting

the use of the internet based Learning Management System (Moodle) to run some online courses. In addition to this, BOCODOL is a learning center for the Pan-African e-Network (2009), an initiative of the government of India in partnership with the African Union. Through this project, BOCODOL has an e-learning division that offers a range of courses from some leading universities in India. The lectures are conducted using tele-conferencing as the mode of delivery and the course materials are accessed through student portals on the internet. The courses cover a range of disciplines, including International Finance, Human Resources, Aids and Family Health Education, International Business and Tourism. The courses offered are available at both undergraduate and postgraduate levels. It is too early to assess the success of these initiatives as one (that is delivered using Moodle) is still in the developmental stage and the other (the Pan-African e-network) had been running for only two years by November, 2010 and has not yet produced any graduates. For this reason, the intention of this study was to establish and describe the experiences and perceptions of challenges encountered by the learners and staff as well as strategies to mitigate them, and not a consideration of factors affecting the success rate per se, though of course, findings from this study could shed light on such factors.

The study is motivated by the work of various researchers such as Valentine (2002), Albirini (2007), Hara and Kling (1999) and Green (2006) who argue that the promise of the integration of Information Communication Technologies (ICTs) into education has not had a significant positive impact. The impediments cited for this lack of positive impact include prohibitive internet costs (Isaacs, 2007), situational factors (Morgan and Tam, 1999), the digital divide (Gladieux, 2000; Lane, 2009; Dijk & Hacker, 2003; Burgstahler, 2003) as well as social, and/or cultural factors (Berge, 1998) quoted by Richardson (2009).

It has been found that research on distance and online learning has been predominantly preoccupied with “structural issues and challenges of geographical distance... and less with “understanding how students learn in the online classroom and what factors can be implemented to ensure their success” (Raper, 2008, p. 4). See also Hara and Kling (1999); Schrum (1998) cited by Howland and Moore (2002). Clearly an understanding of the factors both enabling and hampering success in a particular context is important in order for efforts to be made to enhance the former and mitigate the latter. This study elicited factors students perceived to be hampering their success, and explored one enabling factor – learner support.

1.3 Research Problem and the Research Question

Given that online learning as a mode of delivery is a relatively new development at BOCODOL, the researcher felt it was a logical assumption that most of the learners would not be familiar with the online learning environment and possibly would not have adequate skills to manipulate the digital learning environment. The potential discomfort that results from the digital learning environment and inadequate relevant computer skills, coupled with the other challenges that literature has shown to have hampered distance and online learning formed the research problem for this study. The research problem presented an opportunity for the researcher to establish the support initiatives that are in place especially for online learners as well as what the learners themselves perceive to be helpful or not so helpful. The researcher was also interested in the self support strategies that the learners employed to minimize the impact of the possible impediments. With the research problem here described in mind, the following research question was found to be relevant and appropriate to direct the overall activities of the study. The research question for this study was:

What is the nature and perceived value of the support and intervention strategies that BOCODOL and its online learners employ to ease the impact of the impediments that the learners encounter?

1.4 Critical questions

The research question was considered through the following critical questions:

- a. What is the nature of the challenges perceived to be facing online learners at BOCODOL?*
- b. What is the nature of support that the college has in place for online learners?*
- c. What do online learners think of the available support strategies and what do they believe would improve these strategies?*
- d. What strategies do online learners employ to ensure their success or to combat the challenges that might lead to their failure?*

1.5 Significance of the Study

The researcher hopes this study will augment what is known about learner support for online learners in Botswana. The study will also provide a starting point for further research. The researcher feels the study will give the case institution (BOCODOL) some insights that might add value to their learner support mechanisms.

1.6 Clarification of Terms

In this section, a clarification of terms as used in the context of this study is presented, in no particular order, for the purpose of creating a common understanding.

Distance learning, elearning and online learning. Distance learning has been defined as “any formal approach to instruction in which the majority of the instruction occurs while educator and learner are not in each other’s physical presence” (Mehrotra, Hollister and McGahey (2001) cited by Scott, Leon, and Don, (2009, p. 31.) Distance learning has also been defined as “... an instruction and learning practice, utilizing technology and involving students and teachers who are separated by time and space” (Burke, 2002) cited by Stumpf, Mac Crimon and Davis (2005). The use of the term ‘distance learning’ in this study is consistent with the definitions provided with the emphasis on a situation where the learner and the teacher are separated by time and space. As Burke (2002) shows, the technology employed to maintain dialogue between the learner and the teacher is important. Such dialogue can be achieved in a number of formats such as the use of “... interactive television, online courses and hybrid models that combine face-to-face instruction with web or technologically enhanced instructional components.” Mupinga (2005) cited by Scott, Leon, and Don, (2009, p. 31). Online learning is used to denote the technological aspect of distance learning, i.e. the electronic mode of delivery and the digital learning environment, especially since the advent of the internet. It has been argued that online learning cannot be fully appreciated without understanding how distance learning historically evolved (Han, 2007). In this study, online learning is used synonymously with distance learning because the form of distance learning focused on in this study is online learning.

Learner Support. Learner support is a broad concept (Lee, 2003) as shown by the various perceptions in the literature, but is indisputably essential for distance and online learners. Robinson (1995) contends that learner support has been treated as a peripheral activity to the core business of learning materials. Thorpe (2002) concurs with Robinson and argues that the perception that learner support is secondary to learning materials should be reversed. Thorpe (2002) describes learner support as “the meeting of needs that *all* learners have because they are central to high quality learning...” (p. 107).

Tait (2001) considers learner support to be more inclined to the complementary assistance given to the learner to enable them to interact with the learning material. It appears that Tait’s

(2001) version of support is more inclined to additional materials such as study guides and tutorials that help learners make sense of the study materials. However, it can be deduced from Thorpe's description that the satisfaction of learners' needs is a precondition for their successful interaction with the learning materials, as has been suggested by the theory of Maslow's hierarchy of needs (Maslow, 1987). The notion of 'complementary assistance' therefore encompasses personal needs as well as Tait's supplementary learning materials, emphasising the multifaceted nature of learner support.

A definition put forward by the British Institute for Learning and Development (www.kineo.com) has the following key dimensions:

- Support for learners' *mediation* with course and learning resource materials
- Support to create a *social environment*, which encourages *dialogue* and *interactions* both between learners and staff and between learners themselves – this reinforces the view that *learning is a social activity*
- Support for the administrative framework, management and information necessary for learners to progress.

Notably, this description of learner support makes succinct reference to, among other aspects, the social learning, collaborative and interactive characteristics that online learning is acclaimed to make more possible in distance learning than it was previously the case. Clearly, literature abounds with opinions of what learner support is or ought to be. In order to limit the focus of this study the researcher chose to exclude the support that should be derived from the design of the course and the course materials per se, and to focus instead on those aspects of support related to challenges faced by learners in accessing course materials and engaging with them in an online environment. Thus the research was able to focus on learners enrolled for online learning programmes, regardless of their particular course of study.

Web1.0 and Web 2.0 Technologies. The researcher makes use of the terms Web 1.0 and Web 2.0 in this study mindful of the fact that literature shows that it is difficult to give their concise definitions (Cormode & Krishnamurthy, 2008) as the two are closely related and overlapping. However, Web 1.0 generally refers to the advent of the internet when the focus of web developers was information creation. People had access to all the information on the web, they could print it, store it in other storage and retrieval devices, share it and so on, but they could not alter or edit what they found on the sites. This 'read-only' (Rosen & Nelson, 2008) type of usage inadvertently made people passive consumers of information. The rapid

advancement in terms of bandwidth, better web browsers, and software, hardware and user-end platforms has undoubtedly heralded new possibilities for content creation. Users are now able not only to access information, but also to publish, upload or co-create web content. Content co-creation and publishing is made possible by tools and technologies such as Blogs, Podcasts, Wikis, social spaces such as Facebook, MySpace, and Twitter. The use of Web 2.0 in this study refers to such technologies and many others, which allow users to read and write web content. This study adopted the distinction between Web 1.0 and Web 2.0 as summed up by Rosen and Nelson, (2008):

New social-sharing applications are transforming the Internet from a *read-only* (Web 1.0) environment to a *read-write* ecology that many are calling Web 2.0. These tools (e.g. weblogs and wikis) enable Internet users to publish information online almost as easily as they can read online, and they have tremendous potential for learning (p. 211).

Live sessions. Live sessions in this study refer to the classes attended at the learning center (BOCODOL) when the lectures are delivered via video conferencing mode and the interaction between the lecturer and the students is real time.

Real time. In this study ‘real time’ means happening instantly or occurring at the same time.

Synchronous and Asynchronous. In this study, the researcher has adopted the definition of the terms ‘synchronous’ and ‘asynchronous’ that has been put forward by Kruse (2004), in which participants for synchronous modes of delivery have to be ‘present’ at the same time while asynchronous technologies allow participants to access materials at the own time.

Offline. Normally the words online and offline are used with reference to the internet when online denotes the presence of the internet and offline denotes the absence of the internet. However, the use of these terms at the research site was different. Offline sessions mean the recorded and archived (in the student portal) versions of the live sessions. Therefore in the context of this study, offline simply refers to the recorded sessions accessible through the internet, in which real time interaction with the lectures is not possible. Therefore in this context offline should not be misconstrued to mean off the internet.

1.7 Conceptual Framework

Whilst literature points to a large variety of factors that necessitate learner support, Robinson (1995), submits that it is not easy to come across a specific learner support theory because learner support has for some time, been treated as a peripheral activity. The contemporary debates on distance and online learning point to the various forms of interaction as central to learner support (Hill, Song & West, 2009) and thus some conceptual frameworks have since been proposed as shown next.

Ludwig-Hardman and Dunlap (2003) have proposed ‘Scaffolding’ as a conceptual framework for support services by contending that:

Through the use of high-touch, high-interaction learner support services strategies – such as connection to a community of learners and other scaffolding techniques... online students feel less isolated and are immersed in an environment that supports them as they develop or enhance their self-directed learning skills (p.6).

Scaffolding is a metaphor of Vygotsky’s (1978) theory of Constructivism that explains how learning takes place when the learner is supported through interactions with a more knowledgeable peer or an expert in any area of learning.

Collis and Davies (1995) proposed a blend of technology, pedagogy, organization, strategy, and vision to be a realistic conceptual framework for online education (Seung-won Yoon, 2003). Wang’s (2008) ICT integration model in Figure 1 which proposes interactions - learner-learner (social), learner-content (pedagogical) and learner-interface (technological) also suggests a conceptual framework for online learner support.

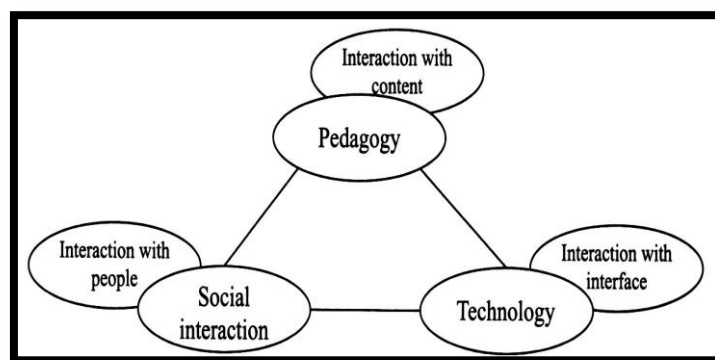


Figure 1. Wang’s Model of ICT integration

Literature points to similar conceptual frameworks (see Moore, 1989 and Anderson, 2003) that emphasize the essence of various forms of interactions in distance and online learning. This study recognizes such interactions especially in view of the enabling interactive possibilities of Web 2.0 technologies, which the researcher contends could be helpful support interventions for online learners.

“Distance education typically involves studying wholly or mostly in isolation from tutors and other students” (Bell & Tight, 1993) cited by Forrester, Motteram, Parkinson and Slaouti, (2005, p. 294). This means that the physical setup and human interactions that characterize campus based learning are unfortunately not available for online learners. The core learning activities in the new environment are technology mediated as compared to the teacher mediated learning situation. The teacher or instructor is no longer available to control learning activities and times when they have to occur, a feature that essentially defines the traditional learning classroom (Seung-won Yoon, 2003). Learner–learner and learner-teacher interactions therefore become virtually nonexistent in online learning. The main interactions become learner – content materials and learner - digital space interactions. This makes online learning largely an individual and lonely activity. Seung-won Yoon (2003) reiterate that interactions between peers and indeed course instructors are essential for meaningful learning experiences. The natural consequence of isolation is reduced motivation resulting from lack of moral support, and this in turn may ultimately lead to lack of successful completion of courses or failure. Therefore, the isolation that is said to characterize online learning also legitimizes the need for some form of support intervention. The researcher argues that Web 2.0 technologies can be used to bridge the social interactions gap that exists within online learning.

In a broader sense, the essence of the conceptual frameworks noted above is related to other main stream theories of learning such as Bandura’s (1977) Social Learning Theory. Wang’s conceptual framework has a social constructivist inclination. Interactions of various forms are correlated and central to the principles that underpin theories such as Constructivism (Vygotsky, 1978) and Lave’s (1995) Situated Learning theory. For instance the principles of constructivism - Scaffolding and the Zone of Proximal Development (Vygotsky, 1978), would not be possible without supportive interactions between those who are knowledgeable and those aspiring to acquire such knowledge in a social learning context. Similarly, Situated Learning also recognizes the often underestimated learning that inadvertently result from

casual social interactions or by being allowed to participate in different ‘communities of practice’ - a phrase coined by (Wenger, 2006) to mean “groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly”, such as novice online learners. The essence of this study is to establish the perceived helpful support interventions in the social and technological interaction environment that defines online learning.

1.8 Outline of Chapters

The following is the outline of the structure of the chapters in this research report.

Chapter 2: Literature Review. Presented in this chapter is the review of literature on the following: the potential benefits and possible challenges of online learning; different manifestations of the digital divide as impediments to online learning; some learner support models and the use of some Web 2.0 technologies as components of learner support for online learners.

Chapter 3: Research Design, Methodology and Procedures. In this chapter, an account of the research methodology, approach and procedures is presented. A description of the research site, recruitment of participants, and how data were collected and analysed is also presented. The chapter also contains a description of the ethical considerations in the research, and limitations encountered in the research process.

Chapter 4: Presentation of Results. The findings of the research and the results of the data analysis are presented in this chapter. Graphs and lists are used to represent the main themes that emerged in this study. A brief summary of the implications of the results is also given.

Chapter 5: Discussion of the Findings. An in depth discussion of the findings is presented in this chapter. The discussion is related to the research question, literature review and the findings from the research site.

Chapter 6: Conclusion and Recommendation. In this chapter, the researcher’s reflection on the objectives of the study in relation to the findings is presented. Some recommendations that the researcher feels are worthy of consideration and further exploration are presented.

2. LITERATURE REVIEW

2.1 Introduction

Distance education has been defined as “any formal approach to instruction in which the majority of the instruction occurs while educator and learner are not in each other’s physical presence” Mehrotra, Hollister and McGahey (2001) cited by Scott, Leon and Don (2009, p. 31). Traditionally, this mode of learning was largely print based and the correspondence between the learners and their teachers relied predominantly on mail and radio. The development of Information Communication Technologies (ICTs) led to a significant shift from print based material to digital material conveyed via the internet, resulting in the form of distance learning called online learning.

The impact of ICTs, particularly the internet, on distance and online education, remains a contentious issue in contemporary educational technology debates. Glaudieux (2000) has captured the range of perspectives in the question ‘hope or hype?’ The advent of the internet created much enthusiasm in educational circles, with proponents predicting an array of benefits that would result from the integration of the internet in distance education. Critics on the other hand dismissed the postulates as overzealous, arguing that the purported hope would remain a fleeting illusion for as long as some impediments prevail. Be that as it may, there are some learners who have been enticed by the hype and have pinned their hopes on the promise of the internet. Many students continue to enroll for online learning to achieve education which might otherwise have eluded them. In order to ensure that students do indeed benefit from the potential offered by the internet, it is important to understand what some of the impediments to the fulfillment of the hope might be, and how best to ensure that its potential benefits are realized.

In the light of the aforementioned, the literature selected for this review is related to the following: the promise of the internet, impediments to the realization of benefits of the internet and learner support. This review will discuss the digital divide, technology acceptance and learner characteristics as impediments. It will be demonstrated that learner support is one strategy for mitigating these impediments. The evaluation of the literature will validate the need for further exploration of alternative comprehensive support systems for online learners, hence making this study a necessary contribution to research on learner support.

Furthermore, this literature review seeks to illustrate that, despite online learning being around for close to two decades now, there has not been any major paradigm shift in distance learning, save for the automation of traditional campus based courses. However, given the nature of the current ICTs (Web 2.0 technologies), Downes (2009) suggests that online learning should have already reached what he calls e-learning 2.0 where online learning will be more of a social and collaborative experience rather than an isolated activity. This sentiment is echoed by Hart (2009) who not only suggests that the future of online learning is social learning but also calls for new forms of learner support. Some of the features of Web 2.0 technology and how they could transform learner support will be discussed. This review will conclude by discussing how elements of Web 2.0 technologies can be integrated into support systems for online learners in the 21st century –which marks the advent of Web 2.0 technologies.

Promise of the Internet: The promise of the internet for distance education has been acknowledged by many researchers in contemporary debates about its value (Gladieux, 2000; Valantine, 2002; Galusha, 1997; Raper 2008; Kim, 2002). The common benefits that recur in the debates are: the freeing of pedagogical activities from the confines of time and location, thereby ensuring greater flexibility for learners; greater reach to learners who may have been geographically disadvantaged by distance (Raper, 2008; Green, 2006) and the democratization of the learning environment (Warschauer & Healey, 1998) cited by Albirini (2007). Furthermore, it has been intimated that ICTs will usher in new possibilities such as online collaboration, an aspect that could eliminate the isolation that characterizes distance learning (Harasim, 1989) cited by LaPadula (2003). Owing to the rapid advancement of technology, there is no doubt that new possibilities are envisaged every day.

The positive attributes alluded to above sound like the panacea needed for Botswana's educational needs. Botswana has a population of about 2, 029 307 million (The World Factbook, 2010), of which about 50% is concentrated in the two cities of Gaborone and Francistown and some major towns and villages, while the rest is sparsely distributed in the remainder of the vast 582,000 square kilometers of countryside (Isaacs, 2007). With only one university and a number of colleges, also found in the cities and major villages, the integration of ICTs such as the internet and tele-conferencing in education is an ideal way of reaching learners who are disadvantaged by being far from the cities and major towns and

villages where institutions of higher learning are found. However, the benefits illustrated above could prove elusive to students in Botswana as a result of a number of prevailing impediments.

Impediments. In trying to down play the hype about the promise of the internet, Gladieux (2000) cautions that, "... history ... suggests that the impact of cutting-edge technologies consistently fell far short of the claims made by their proponents" (p. 352). He cites the advent of radio and television which did not lead to a revolutionary paradigm shift in education. In a likewise manner, literature suggests that the proponents of the promise of the internet are perhaps overly enthusiastic. The reality on the ground shows that greater reach, flexibility, and time and location independent learning practices do not necessarily translate to equality or universality (Gladieux, 2000) or equitable access to internet services such as online learning. There are many obstacles that hinder the realization of the envisaged benefits. Literature points to the digital divide (Lane, 2009; Dijk & Hacker, 2003; Burgstahler, 2002), learner support and the demographic characteristics of online learners (Galusha, 1997), and lack of guiding policies (Albirini, 2007) as some of the factors that inhibit the realization of the full potential of the impact of ICTs on distance and online learning. While the integration of ICTs in education seems to be a solution to Botswana's educational needs, Botswana is not immune to the impediments cited. This literature review will discuss some aspects of the digital divide that impact on online learning and their implications for learner support. The discussion will conclude by relating the digital divide issues to the context of Botswana.

2.2 The Digital Divide

2.2.1 Physical Access

Many researchers have defined the physical access form of the digital divide as the difference between the haves and have-nots in terms of access to Information Communication Technologies (Lane, 2009; Dijk & Hacker, 2002). Lack of ICTs inevitably translates to restricted access to information compared to that enjoyed by those who have the means. Given this 'entry level' definition one may assume that learners who have enrolled for online courses have escaped the digital divide hurdle, therefore rendering the digital divide irrelevant and out of context. The literature review will later show that the digital divide manifests itself in different forms such as technology acceptance and indeed the demographic characteristics of online learners. The review will further illustrate that that even within a

cohort of online learners, various forms of the digital divide prevail. Furthermore, the discussion will show that the digital divide is not only a technological factor, but also very much a social and economic issue. This is because ICTs related hardware such as computers and peripherals, software such as Learning Management Platforms, issues of bandwidth and internet access are too costly for many people. While the internet is acclaimed for the benefits alluded to earlier, Gladieux (2000) faults it for creating and possibly exacerbating a digital divide from this social and indeed economic context.

The statistics shown in Table 1 reveal a huge disparity in internet availability between for instance the USA and Africa. The statistics illustrate what Castells (2001) refers to as the asymmetrical distribution of technology between the developed and the developing countries. Not only is such disparity prevalent between continents, but also between countries within one continent. Within individual countries the divide manifests between urban and rural areas, again as a result of the inequitable distribution of technology, a scenario true for Botswana also. In any case, a logical assumption is that the availability of and access to online learning services will follow a similar trend to that of the distribution and reach of the internet. Therefore, where there is internet access, it would be natural to expect access to online learning opportunities.

WORLD INTERNET USAGE AND POPULATION STATISTICS						
World Regions	Population (2010 Est.)	Internet Users Dec. 31, 2000	Internet Users Latest Data	Penetration (% Population)	Growth 2000-2010	Users % of Table
Africa	1,013,779,050	4,514,400	110,931,700	10.9 %	2,357.3 %	5.6 %
Asia	3,834,792,852	114,304,000	825,094,396	21.5 %	621.8 %	42.0 %
Europe	813,319,511	105,096,093	475,069,448	58.4 %	352.0 %	24.2 %
Middle East	212,336,924	3,284,800	63,240,946	29.8 %	1,825.3 %	3.2 %
North America	344,124,450	108,096,800	266,224,500	77.4 %	146.3 %	13.5 %
Latin America/Caribbean	592,556,972	18,068,919	204,689,836	34.5 %	1,032.8 %	10.4 %
Oceania / Australia	34,700,201	7,620,480	21,263,990	61.3 %	179.0 %	1.1 %
WORLD TOTAL	6,845,609,960	360,985,492	1,966,514,816	28.7 %	444.8 %	100.0 %

Table 1. World Internet Usage and Population Statistics (2010)

Source: <http://www.internetworldstats.com/stats.htm>

2.2.2 Technology Acceptance – Attitudes and Perceptions

An array of ICTs forms the basis of online learning. Successful manipulation of this learning environment demands the possession of technical skills and computer literacies (Hart, 2008) without which a student may experience some discomfort in using an online study mode,

inadvertently resulting in the digital divide. The integration of ICTs in education, particularly in online learning, makes interaction with technology mandatory. Therefore, learners may spend some time trying to get acquainted with the technology rather than putting it to its intended purpose (Bagozzi, Davis and Warshaw, 1992). The impact of perceptions of technology acceptance has been foregrounded by the work of Davis, Bagozzi, Davis and Warshaw, (1989). Davies et al., (1989) put forward a useful model, the Technology Acceptance Model (TAM) to explain the perceptions and attitudes that determine computer usage and acceptance of information technology. The proponents of TAM submit that the use of technology depends on the user's perceived usefulness (PU) and perceived ease of use (PEOU) of technology. These variables will determine the behavioural intention (BI) which will in turn influence the actual usage (AU). The explanation of TAM shows that, where technology is available, access to it may be impeded by lack of technological readiness resulting from the attitudes of the users.

2.2.3 Quality of Learning Materials

For learners who have enrolled, can we confidently say that they have escaped the digital divide obstacle? NO! Mitchell, Smith, Louw, Tshesane, Petersen-Waughtal and du Preez (2007) have proposed another perspective of the digital divide as existing within online courses. Mitchell et al. (2007) contend that the difference between good and bad online learning products (and not just access to technology) also amounts to a digital divide. In a traditional set up learners have teachers at their disposal to get clarity where instructional materials or activities may not be clear. The same cannot be said for online learners who often do not have the face to face encounters that their on campus counterparts enjoy. For Mitchell et al., (2007) the solution to bridging this version of the digital divide lies with adhering to good principles of materials design as well as using paper or print-based materials to complement online learning materials. The quality of materials and the support offered to learners through them is undisputedly a key ingredient for learner success in an online environment. In this study, however, the researcher is going to consider issues related to the supplementary support that would be needed by online learners – regardless of the quality of the materials or course design.

2.2.4 Demographic Characteristics of Learners and the Digital Divide

In this section, the demographic characteristic of age is reviewed as a manifestation of the digital divide. The support implications of the differences in age will be discussed in the

learner support section of this review. In the traditional learning context, cohorts of learners usually have homogeneous demographic characteristics. The same cannot be said about distance and online learners. Among such characteristics is age. Closely associated with age, the classification ‘digital natives’ and ‘digital immigrants’ (Prensky, 2001) is now common. The term ‘digital natives’ refers to people who grew up with technology and ‘digital immigrants’ describes people who have learned to use technology later in life (Hart, 2008). Table 2 shows how different generations in the USA and Europe differ in their exposure to ICTs, and the extent to which they are digital natives or digital immigrants. The level of experience with for example, digital information manipulation, computer literacies and competencies, internet and mobile devices, also known as ‘digital fluency’ (Hart, 2008), separates the digital immigrants from the digital natives. Both these classifications amount to a form of digital divide based on digital fluency.

Overview of the Generations			
	Born	In the work force?	Influence of digital technology
Veterans	1925-45	Most are in retirement but youngest still in the workforce although they will leave in the next five years	Have come to technology late in life; now biggest growing internet user group
Baby Boomers	1946-64	Hold significant positions in the workforce but large numbers retiring early	Introduced to technology in their 30s and 40s
Gen X	1965-79	Out of full time education and in the workforce	Digital technology emerged during their late teens
Gen Y	1980-95	Some in education others in the workforce	Have enjoyed digital technology their entire lives
Gen Z	1996-	In fulltime education; they will start to appear in the workforce in about 5 years	Never known the world without the internet

Table 2 Generations and Digital fluency (Redrawn by the researcher)

Source: <http://www.slideshare.net/janehart/using-social-media2>

The characteristics and classifications described have profound implications for the different needs, expectations and support interventions for learners in a digital learning environment. An over view of such implications is given next.

Distance and online learners are mostly aged between 25 and 50 years (Moore & Kearsely, 1996) cited by Cercone (2008), which means that most of them are adults. Adults are not only perceived to have a lower level of digital fluency (being digital immigrants), but they are also known to have commitments such as family responsibilities and jobs. The responsibilities and commitments that come with age can impact negatively on the learners' commitment to learning, thereby impeding the benefits of the flexibility of the online learning, thus making support necessary.

As Cercone (2008) puts it, adults grew up in the era where learning meant sitting in a physical classroom and participating in an instructor-designed and instructor-led activity. Adults need more time to feel comfortable with technology mediated instruction before they can actually do their courses. Essentially this means that adults learn how to learn at the same time as learning their course materials which might be strenuous given the responsibilities and other situational problems they have to juggle with as they study.

As a result of being classified as digital natives, youth on the other hand are generally perceived to be relatively comfortable with technology-rich learning environments, though this notion is rejected by Brown and Czerniewicz, (2010) for its lack of empirical research evidence. The supposed comfort is attributed to the amount of time youngsters spend on the internet downloading songs, movies, emailing, exchanging files and chatting on social platforms such as Facebook, Twitter, MySpace and YouTube. Through these near addictive activities, the youngsters supposedly get acquainted with the digital environment and how to navigate it. This perceived comfort has been dismissed as an unreliable indicator of academic prowess and ability to study independently in online environment (Armstrong, 2010, cited in <http://www.onlineteachingandlearning.com/podcast-palloff-pratt>). While young people may display some degree of technological comfort or readiness, they may also need support that can help to acquaint them with the interface of the virtual learning environments that their institutions use. Such readiness or lack of it may impact on the motivation to learn for both the digital natives and immigrants. Some young learners might display qualities of self direction, learning autonomy and responsibility for own learning more than some adults do.

In a likewise manner, some adults may display more technological and computer literacy skills needed for online learning environments than the younger online learners (Brown & Czerniewicz, 2010). Responding to a blog post by Palloff and Pratt (2010) <http://www.onlineteachingandlearning.com/podcast-palloff-pratt>, Armstrong (2010) concurs that the notion of digital natives and digital immigrants could be an unfounded assumption that cannot be relied on to assert the technological capacity of different age categories. Perhaps this study will also assert or refute the claims about the abilities of digital natives and digital immigrants and how it impacts on online learners at BOCODOL.

2.2.5 The Digital Divide in Botswana

The government of Botswana recognizes the importance of ICT infrastructure development as one of the ways of bridging the digital divide. Logistics are in place to fast track ICT infrastructure development to enhance reach and access to services like online learning. An example of this endeavour is “the plan to establish an Education Data Network (EDN) that will provide educational institutions with access to Internet, e-mail, and Web-based teaching and learning throughout the country” (Isaacs, 2007, p. 10). However, despite the government’s effort to create an enabling technological environment, the digital divide, in different manifestations remains a contentious issue.

The impediments discussed so far - digital divide in all forms considered, learners’ attitudes to ICTs and heterogeneous demographic learner characteristics are legitimate concerns also prevalent in Botswana. Each factor is experienced differently by different learners. Therefore, the concerns discussed validate the need for a comprehensive support system for learners who are already enrolled for online learning. Cognisant of aforementioned impediments, the next part of this review discusses learner support as a mitigation strategy for the challenges discussed.

2.3 Learner Support

Learner support has been defined as “the meeting of needs that *all* learners have because they are central to high quality learning—guidance about course choice, preparatory diagnosis, study skills, access to group learning in seminars and tutorials...” (Thorpe, 2002, p. 107). It appears that what this definition proposes has not been effectively provided for distance and online learners for various reasons. One reason, as Viser and Viser (2000), cited by LaPadula (2003) argue, is lack of empirical research guiding the design of effective student support

systems in distance learning. This notion is echoed by Robinson, (1995) who suggests that learner support has always been a peripheral activity and as such was never given the kind of attention that was given to content and content delivery mechanisms, a position Raper (2008) also concurs with. While the need for learner support has always been there, the advent of the use of ICTs in the delivery of distance education has not only increased the need for such support but has also changed the nature of the support needed. The previous part of this review, on impediments, forms part of the justification for support systems for online learners. There are many factors necessitating learner support but this review will be limited to the following two perspectives. Firstly, the new technological learning environment that has implications for the need for computer literacy and competencies, and which like other forms of delivery of distance education associated with can be associated with student isolation, and secondly, the different characteristics of online learners that may bring about different needs, expectations and as a result, the need for different support interventions. An evaluation of these factors can shed light on what might be the nature of mitigation strategies to combat the challenges alluded to in this study.

2.3.1 New Learning Environment

I (the researcher) have observed that in a conventional learning situation a student has to be familiar with the physical learning environment such as classrooms, the library, content presentation media such as black boards, overhead projectors and an array of physical learning aids. The physical environment has signs around directing people to various locations. Classrooms for instance, are named and numbered so that people find their way around easily and in so doing people negotiate the conventional learning environment with relative ease and comfort. Comfort in getting around is also supported by the presence of different departments such as the inquiries, registry, admissions, finance, library, guidance and counseling departments mandated to meet different needs of learners. The concerted effort of all these departments and others not mentioned constitutes a learner support mechanism for conventional learners which helps them to access quality education and aids in the successful completion of their studies. Furthermore, the conventional learning environment has ample provision for face to face interactions between learners and teachers and well as among peers, a condition that makes support readily available for learners.

In contrast to the conventional learning environment, in online learning the learner has to navigate a digital learning environment characterized by ‘Rich Learning Media’ defined as “a

segment of digital content that illustrates, demonstrates, or communicates its concept, using a combination of media, including text, graphics, animation, audio, and/or video, to address a particular learning goal” (www.myudutu.com, 2010). The physical features of the conventional learning environment are now represented by some icons on the interface of their computer. The hyperlinks now replace the sign boards that learners were accustomed to seeing around the school. This new technology mediated learning environment is completely different from what learners are used to and the initial experience for online learners is often frightening and intimidating (LaPadula, 2003; Salmon, 2002). The support that is readily available in a conventional learning situation is often close to nonexistent in online learning. The face to face aspect is also nonexistent. It is crucial that learners are made as comfortable in this new learning environment as they would be in a conventional learning setup. LaPadula (2003) contends that the absence of learner support mechanisms for online learners leads to isolation, discouragement and failure. Whereas in a the traditional learning set up learners can walk about and ask whomsoever they meet, or seek help from designated avenues, different skills are needed to manipulate the digital learning environment. In particular, learners need to possess technological competencies and computer skills without which meaningful participation in the online learning environment is limited, resulting in possible isolation.

2.3.2 Characteristics of Online Learners

Learner characteristics are among the key elements that necessitate learner support in a learning environment (Yilmaz-Soylu & Akkoyunlu, 2002). The heterogeneous nature of the characteristics of distance and online learners requires a variety of forms of support as acknowledged by many researchers (Lim & Kim, 2003; Smith, 2005; Yen & Liu, 2009; Park & Choi, 2009; Tait, 1995; Cercone, 2008; Dabbagh, 2007). Characteristics such as learning styles, age, maturity and interest (Yilmaz-Soylu & Akkoyunlu, 2002) will be reviewed in the next section. Lim and Kim (2003) have also cited gender, previous work experience, computer experience, and previous online learning experience as other characteristics of distance and online learners.

Mature learners, who often have work and family commitments, may have enhanced intrinsic motivation driven by the prospective change of social status or financial position associated with the studies undertaken. Therefore, maturity could necessitate support interventions that free learners from work and family commitments so that can focus on studying. Distance and online learners without experience of independent studying may feel isolated when studying

by distance or online. Such a characteristic obviously warrants support that makes up for the collaborative studying that learners may be used to. Previous experience of computer usage might eliminate the intimidation that a technologically rich learning environment might have on novice learners. Similarly, lack of computer skills and competencies warrants support that can eliminate the potential isolation and intimidation that results from the lack of such skills. The researcher believes that engagements such as parental obligations, marital status and occupational commitments may demand that a learner have sound time management skills.

While distance and online education is predominantly adult oriented, the trend is rapidly changing as digital natives become the major clientele. Downes (2005) sums up the learner characteristics of digital natives by observing that:

They absorb information quickly, in images and video as well as text, from multiple sources simultaneously. They operate at ‘twitch speed’, expecting instant responses and feedback. They prefer random "on-demand" access to media, expect to be in constant communication with their friends (who may be next door or around the world), and they are as likely to create their own media (or download someone else's) as to purchase a book or a CD (Downes, 2005).

Hart (2009) also has an interesting description of the new generation of online learners, “self confident, self-reliant, social, opinionated, goal-oriented multi-taskers, hyper, connected... (And) technically savvy”. However, while Hart acknowledges the distinction between the digital natives and migrants, she reckons that what is more important now is ‘digital fluency’ needed to manipulate information and collaborate with ease on the digital environment. Hart (2009) contends that digital fluency and learner characteristics of today dictate the need for innovative forms of learner support. The diversity of characteristics clearly brings about different expectations, capabilities and needs. What implications do they have for support systems? Clearly, the characteristics point to the need for a comprehensive support system that not only caters for the variety of needs and expectations of learners but which is also consistent with the nature of the learning environment in the 21st century.

2.4 Comprehensive Learner Support System

2.4.1 Introduction

In an online learning environment, where learners have different characteristics, with different needs, expectations and different competencies with regard to the pre-requisite skills and related problems, and where there is the possibility of isolation in an unfamiliar technology-rich learning environment, what constitutes a meaningful support system? What

do the learners themselves think works for them? The next part of this literature review attempts to answer these questions by reviewing literature on effective support mechanisms. The synthesis of these elements of support will hopefully give an idea of a comprehensive learner support system that would be ideal for distance and online learners, especially in the 21st century.

Learner support is a broad concept (Lee, 2003) as shown by the different approaches that are advocated by different researchers. These include pragmatic, holistic approaches (Robinson, 1995), supplementary approaches (Tait, 1995) and a combination of approaches (Mason, (2000) cited by Lee, 2003). Robinson (1995) considers pragmatic support strategies to be those that are mostly reliant on a description of experiences rather than on empirical research. Robinson (1995) cited by Ibrahim & Silong (1997) suggests that the following are the essential elements of learner support:

- Personal contact between learners and support agency people acting in a variety of support roles and with a range of titles, individual or group, face-to-face or via other means;
- Peer contact;
- The activity of giving feedback to individuals on their learning;
- Additional materials such handbooks, advice, notes or guides;
- Study groups and centers, actual or 'virtual' (electronic);
- Access to libraries, laboratories, equipment and communication networks (p. 3).

Supplementary support mechanisms suggested by Tait (1995) on the other hand, refer to the integral support activities that complement the learning materials that the students interact with. In broad terms, the activities reflect the cognitive, affective and institutional dimensions of learner support (Tait, 2000) cited by (Forrester et al., 2005). Tait (1995) suggests that such support activities should include among others: face to face tutoring, correspondence by telephone or electronically, study centers and interactive teaching through TV and radio. A combination of elements suggested by Tait and Robinson can be another approach for learner support, as Mason (2000) suggests. This study builds on these notions and further explores other perceptions of comprehensive learner support systems. In this study, the literature reviewed is focused on institutional support initiatives (Keast, 1997) and learner support initiatives that learners can access outside the institution. The evaluation of both institutional and beyond the institution support strategies will go a long way toward suggesting what constitutes appropriate learner support. The review will later concentrate on support

interventions that corresponds with the nature of online learning in the 21st century, also known as ‘e-learning 2.0’ (Downes 2005). The review will demonstrate that online learning has developed to a state that calls for innovative support strategies.

2.4.2 Institutional Learner Support Models

Induction

Induction is usually used synonymously with orientation to refer to “a series of planned activities developed specifically for the purpose of acquainting students with the systems, procedures, formalities and regulations of a particular institution” (Forrester et al., 2005, p. 293). Usually, such activities are carried out once at the beginning of a study programme. In a support model called START-OUT, Forrester et al. suggest that induction should be a continual process that runs from the start to the end of a course. In pragmatic interventions, no action is taken unless a problem arises whereupon a contingent reaction is devised. Induction on the other hand has a continuous programme of activities that proactively address preconceived students’ difficulties. The activities encompass a range of dimensions of a support system such as social, academic, and administrative orientation to get acquainted with the university and tutors (Forrester et al., 2005). The notion of continuous induction seems especially appropriate for online learners who find themselves in a transitional phase from traditional campus based learning to a new unfamiliar technology mediated learning environment. Successful registration, payment of fees and collection of learning materials on the first day is not a guarantee of comfort and success for the learners. Since Induction refers to a range of activities that can vary from place to place - i.e. the nature of the ongoing proactive support activities will not necessarily be the same in all places, it may be difficult to evaluate it as a single intervention. The manifestations of Induction in different contexts may suggest whether Induction is a worthwhile form of intervention.

Beyond the Administrative Core

Whereas campus based learners have an array of support services at their disposal, LaPadula (2003) observed that distance and online learners usually get support limited to the usual administrative chores such financial logistics, registration, and admissions. Outside the parameters of the aforementioned services, learners are pretty much on their own. In order to correct this short coming, academic advising/career counseling, personal/mental health counseling and services that promote a sense of community have been encouraged in a model called ‘Beyond the Administrative Core’ (LaPadula, 2003). Each of the three broad areas has

some elements that address different needs. For instance, services that promote a sense of community eliminate the isolation that was alluded to earlier. The model seems ideal to cater for different characteristics. However, unlike the START-OUT model there is no clear statement of whether the interventions are continuous or available as and when need arises.

Other literature on comprehensive learner support for distance and online and learners suggests similar support elements. These multifaceted support systems target various learner needs such as technological readiness, the need for collaboration and accommodation of different learner needs arising from different learner characteristics. For instance, Keast (1997) cited by Lee (2003) suggests that learner support should be structured to include the elements of administrative, instructional, technical, counseling and tutorial support. These have much in common with the National Association of Distance Education and Open Learning in South African (NADEOSA)'s criteria for a comprehensive learner support system as NADEOSA suggests that such a system includes academic and administrative support, counseling, learning centers, monitoring and quality assurance. Keast (1997) and NADEOSA's (2005) learner support elements may not be entirely congruent, but they both reflect a multi dimensional approach to learner support. Such a multi faceted approach is important in effectively addressing the needs of online distance learners who have different demographic backgrounds and learning characteristics and needs. For instance counseling can aid persistence while technical support aids readiness for learners who do not have online learning experience, thus encouraging technology acceptance.

2.4.3 Beyond the Institution Support Interventions

Collaboration of Stakeholders

While the models discussed so far seem to be comprehensive, they all appear to place the responsibility for learner support squarely on the institutions that provide the learning services. Perhaps this is in a bid to make learner support more integral than the haphazard, improvised and peripheral activity noted by Robinson (1995). In a learner support model called 'Collaboration of Stakeholders', Lepphoto and Mohasi (2009) propose elements of support from beyond the institution, a dimension that is often neglected. The support could be in the form of family members willing to babysit, assistance with making logistics for internet access possible, work colleagues willing to stand in, supervisors granting leave when the learner sits for exams or needs to participate in collaborative learning activities - the list is endless and as varied as the heterogeneous characteristics of distance and online learners.

The examples cited here constitute a strong psycho-social dimension of learner support which comes from outside the institution, a testament that learner support is not the responsibility of the institution alone. The support model is different from the ones reviewed earlier as the responsibility for learner support is extended beyond the institution, to stake holders such as family and employers. Given the heterogeneous characteristics alluded to earlier, it makes reasonable sense to assume that a lot of learners have to juggle learning with family responsibilities, job commitments and sometimes have to forgo other social obligations. The nature of the support needed in such cases is clearly beyond the institution.

While the above mentioned components of learner support are sound and perhaps comprehensive in that they cover a vast variety of needs, it seems that the rapid advancement of the digital learning environment of the 21st century has rendered them inadequate and as such additional support strategies for online learners should be explored.

2.5 Support in the 21st Century

Contemporary literature abounds with debates that give insight into the new dimensions of learner support activities that are consistent with the exponential development of online learning. For instance Downes (2005; 2009), Ribchester, France & Wheeler (2007), Hart (2008; 2009a; 2009b 2010), Salmon (2002) and Richardson (2008), advocate for harnessing the benefits of Web 2.0 technologies to facilitate online learning and learner support. Amongst the Web 2.0 technologies are: podcasts, social bookmarking applications such as Delicious and Elgg, collaborative writing tools such as wikis, content aggregation tools such as Really Simple Syndication (RSS) feeds, Voice over Internet applications such as Skpye, and social collaboration applications such as Facebook, MySpace and media sharing platforms such as YouTube. Furthermore, the same technologies and tools have been shown to have a great potential in assessment and feedback activities. These shall be expounded upon in the later part of this review. This review will attempt to demonstrate that Web 2.0 technologies can blend well with and complement the support components discussed earlier.

The above technologies are credited for the collaborative possibilities that could, for instance, diminish the isolation that often characterizes distance and online learning, enhance feedback, and promote learner autonomy, information sharing and real time communication. The researcher intends to establish the perceived value and practicality of these technologies when used as new forms of enhancing learner support systems. In the next section I will consider

which technologies might be most suitable for learner support, and consider their usefulness for this purpose.

2.5.1 Web 2.0 Technologies

With hundreds of Web 2.0 technologies on the internet, what criterion does one employ to select the technologies to use? I suppose while there is no predetermined formula, random selection is also not ideal, especially for learning purposes. I will borrow from Hart (2008) who suggests that:

What is needed is an integrated platform of key social media tools that can:

1. Provide secure space (sic) for individuals to aggregate, store and share personal learning working resources.
2. Provide a secure space for groups to work and learn collaboratively.
3. Provide a secure space for formal and collaborative learning to take place.

The above criteria are not only consistent with the needs of online learners but also reflect the enhanced possibilities of online activities in the 21st century.

Content Aggregation Tools

Wikipedia suggests that an “aggregator” is a web site or computer software that puts together a specific type of information from multiple online sources. Such information is then sent to the subscriber by using a content aggregation tool such as Really Simple Syndication (R.S.S). Online learning involves a great deal of finding of information, storing it, and creating and sharing of data bases of learning resources. As Bruer (2008) notes, online information is overwhelming and can lead to cognitive overload. Subscribing to aggregators such as R.S.S places a learner within a network of people who have a common interest in certain information. Making use of RSS tools as part of support interventions can be useful for learners who do not possess competent information searching skills. Effectively, information comes to the subscriber without their having to search for it.

One form of content aggregation is social bookmarking using platforms such as Delicious, Elgg and Wikis. These technologies allow subscribers to share links to resources that others may find interesting by tagging them. In order to avoid the possibility of learners going astray or getting lost in the Internet, institutions can make provision for the use of collaboration and content aggregation tools within the courseware so that even monitoring and facilitation is manageable.

Collaborative Writing and Content Creation

There are numerous Web 2.0 tools that are credited for collaborative writing possibilities. Hart (2009a) cautions about the concerns for data privacy and security for danger of using such tools. Fortunately, Learning Management Systems such as Moodle and WebCT have wikis and blogs already inbuilt, therefore reducing the potential of straying away from the courseware and getting lost in the World Wide Web.

For collaborative writing, wikis, blogs and forums can be used. Wikis do not have a central author or editor and content is collaboratively created giving a truly social experience. Blogs on the other hand place importance on an individual's autonomy and self expression. Blogs operate more like online journals that keep track on an individual's activities and interests while giving others the privilege of adding content to what the owner of the Blog might be interested in. Forums on the other hand have the advantage of both synchronous and asynchronous discussion and collaborative possibilities. The course administrator or teacher can provide guidance in terms of the type of information to be shared and co-authored or discussed but learners will also have the right to post whatever they deem pertinent. In terms of support the tools discussed can help teachers keep a track of the activities of their learners.

Social Interaction and Learning

The amount of learning that takes place in less formal social interactions is often underestimated. The theory of Situated Learning contends that learning is a function of the activity, context and culture in which it occurs and it usually unintentional rather than deliberate (Lave & Wenger, 1991). Being allowed in the company of people who have certain knowledge, skills, interests or communities of practice gives the participants access to tacit knowledge that may not be easily acquired through formal learning situations. This is also referred to as legitimate peripheral participation (Lave & Wenger, 1991) quoted by Sfard (1998).

Social spaces like Facebook provide the opportunity for interaction and a sense of collaborative participation that the theory of Situated Learning advocates. The profiles created when opening Facebook accounts displaying optional features such as date of birth, profile pictures, real names, interests, groups, or even what is on one's mind create a sense of virtual presence within a network of friends. Facebook allows file sharing and tagging which can be one way of aggregating information of interest and, in the process, a lot of learning

and co-authoring inadvertently takes place. In this regard Facebook and many other social interaction spaces have a casual way of making up for the face to face element that is often missing in online learning. In addition to the social interaction, I think participating in the interest groups and using the file sharing features of Facebook inadvertently improves the learners' digital literacy - a crucial requirement for online learning.

Assessment and Feedback

Assessment in education is meant to monitor the extent to which participants improve knowledge and skills as a result of attending the program (Kirkpatrick, 1998) cited by Kim, Smith and Maeng (2008). Assessment, whether online or in face to face situations, has to conform to some basic principles such as reliability, validity, fairness and ethics, efficiency and feasibility (McMillan, 2000). Just as in campus based learning, assessment and feedback for online learners is a central component of learning activities. Whereas campus based learners can take advantage of the face to face element of the learning environment and seek further clarification on feedback given, online learners do not have that these possibilities. Face to face contact accords the campus based learners and their teachers a chance to engage in a reciprocal deeper level of communication that is even helped by the non verbal cues. Face to face discussion of feedback reveals more information than a mere grade often given to online learners.

Web 2.0 technologies such as podcasts have the potential to accord online learners feedback experiences similar to those that are enjoyed by campus based learners. Podcasting, for instance, allows teachers to record detailed verbal feedback which can then be sent via email to students. The recordings can then be downloaded and saved in to mobile devices such as MP3 (plays audio only), MP4 (plays video and audio) or even USB drives. Learners can then play back the podcast at their convenience. The usefulness of podcasts has been reiterated by Ribchester et al., (2007), who concluded that, "podcasts offer the opportunity to diversify feedback strategies, potentially providing more detailed guidance and explanations which, in turn, may be reviewed more deeply by students" (p. 137). Diverse and prompt feedback strategies are consistent with the characteristics of the 'new generation' online learners whom, it has been observed, "...operate at 'twitch speed,' expecting instant responses and feedback" (Downes, 2005). The ability to generate innovative feedback strategies such as podcasts can replicate the integral and oral support that campus based learners enjoy.

Feedback that is a lot more than a grade or score, would go a long way as an embedded support intervention and a motivating factor for online learners.

The Web 2.0 tools enable students to be producers, publishers, audience and peer reviewers of content (Leister, 2010). Assessment should therefore be reflective of all these roles that the students find themselves playing. Producing entails an end product that demonstrates achievement of learning objectives. According to Leister (2010) a product can be in the form of a traditional research paper, a movie or even a podcast. Publishing in this case refers to sharing the product with a larger audience such as class (presentations of any form) or even the cyber world using Web 2.0 publishing tools such as podcasts, YouTube, MySpace, Facebook, Bloggers, Vloggers etc. Web 2.0 tools such as forums, chat and Really Simple Syndication (RSS) enable other learners to comment on the product being presented and as such learners also become peer reviewers. In essence, the assessment of the learning process is not limited to the professional, objective, subjective judgment or indeed the discretion of the teacher alone, instead it involves the opinions of a much larger audience which participates through the various Web 2.0 collaborative tools. This would work well for online courses that allow flexibility and autonomy in terms of what to hand in as well as multiple assessment possibilities.

Literature shows that Web 2.0 technologies can go a long way in feedback supportive activities. Richardson (2009) and Ribchester et al. (2007) for instance, are among the proponents of the use of Podcasts, Wikis and Blogs in assessment and feedback activities. As Ribchester et al., (2007) argue, “Technological innovations are providing new opportunities to alter the nature and delivery of assessment feedback, perhaps offering the potential to provide enhanced feedback, without necessarily increasing tutor workloads” (2004, p. 131).

Hart (2009a) contends that the effective application of the intervention discussed above will to a large extent depend on the learner’s ‘digital fluency’. This sentiment is echoed by Salmon (2002) who cautions about the danger of educators being complacent and taking for granted the learner’s entry computer skills. To this end Salmon suggests a five step model that will aid the learner’s participation in a digital environment and the steps are:

- a. Access and motivation: Salmon contends that the initial encounter with the digital environment can be intimidating and demotivating to learners. Therefore, there have

to be deliberate efforts to ensure that learners are comfortable with the interface of the software they are to use.

- b. Online socialization: using what Salmon calls 'e-tivities' (online activities), the second step entails establishing rapport, trust and building a sense of community among learners. As discussed earlier, there are many Web 2.0 tools and technologies that support the sense of community among users by exchanging information of common interest.
- c. Information exchange: The step involves giving learners online activities that enhance and encourage sharing of information.
- d. Knowledge construction: In this stage, Salmon suggests that learners be given tasks that demand them not only to be passive consumers of information on the internet, but also co creators and authors of content. And finally,
- e. Development: This stage demands learners exercise high order skills to engage in activities that involves problem solving as well as the testing of assumptions.

The first three steps of Salomon's model are very useful for creating a sense of comfort for learners who are not used to the digital learning environment. It has been observed that interaction in the digital environment is largely text based (Anderson, 2003) as people are replaced by words on the screen (Palloff & Pratt, 2005). The first three steps are useful in getting learners acquainted to the basics of online learning such as downloading learning materials, emailing and receiving assignments as well as learner-learner and learner-teacher interactions. Knowledge construction and development steps are likely to remain unutilized even in the advent of enabling web technologies and tools in situations where course contents, activities and assessments are predetermined and do not allow flexibility. In any case, Salmon (2002), Hart (2009a) and Downes' (2005) observations are consistent with the current state of the internet technology as they argue that the internet has grown from being simply a medium of conveying automated courses to a platform of social learning.

In the final analysis, it seems that the internet based support elements such as the use Web 2.0 technologies are complementary to the elements discussed earlier such as institutional, beyond the institution and collaboration of stakeholder interventions. They add a dimension that allows for decreased isolation of the learners both from their teachers and from other learners.

3 RESEARCH DESIGN, METHODOLOGY AND PROCEDURES

3.1 Introduction

In this chapter, an account of the research methodology, approach and procedures for this study are given, together with a description of the participants, their courses and mode of study. The chapter also describes the sampling procedure, data collection instruments used and ethical considerations made while the researcher collected data. The chapter concludes by giving an account of the limitations encountered.

3.2 Research Method and Approach

This research is a case study, limited to one educational institution in Botswana that offers courses using teleconferencing as a mode of delivering online learning. Case study has been variously defined as “a generic term for the investigation of an individual, group or phenomenon” (Sturman, 1994 in Bassey, 1999); “the study of a bounded system” (Smith, n.d) and as “the study of the particularity and complexity of a single case” (Stake, 1995). The common factor about these definitions is that a case study is, as Merriam, (2001) quoting Miles and Huberman (1994) points out, “a phenomenon...occurring in a bounded context” (p.27). The researcher found this method appropriate for the study since the study was limited to one institution.

This study is located within the qualitative research paradigm. According to Bell (1999) qualitative research is more concerned with understanding individuals’ insights and perceptions of the world. The researcher found the qualitative research paradigm to be suitable as this study is concerned with the participants’ experiences, perceptions and insights about the research problem for this study. However, some limited amount of quantitative data analysis has been used in this study in order to establish the percentages of participants holding certain views. As Bell (1999) points, “there are occasions when qualitative researchers draw on quantitative techniques, and *vice versa*” (p. 8)

3.2.1 Description of the Research Site

BOCODOL has two modes of online delivery; the first delivers courses wholly online using Open Source software called Moodle – a Learning Management System (LMS). This mode of delivery is currently a pilot project. The other is a fully operational blended mode or mixed

mode of online learning offered in partnership with the Pan-African e-Network project. Blended learning also called mixed mode, has been described by Nicholas (2003) as:

...an approach to education that combines face to face and distance approaches to education in that an instructor or tutor meets with students (either in a face to face mode or through a technological means) and a resource-base of content materials and learning activities is made available to students. In addition, some eLearning approaches might be used (p. 2).

BOCODOL is one of the 53 learning centers in the 53 nations of the African Union participating in the Pan-African e-Network, which is an initiative of the government of India in partnership with the African Union. The network, linking 53 nations of the African Union by a satellite and fiber optic network aims to provide 10 000 students with an opportunity to study for:

Post Graduate (PG), Under Graduate (UG), Diploma and Certificate programmes in the field of management business and finance, engineering, & technology, computer science & information technology, international languages...available from the Indian universities namely Indira Gandhi National Open University (IGNOU), Amity University, Birla Institute of Technology and Science, University of Delhi and University of Madras (BOCODOL website, 2010).

In addition to Tele-education, the Pan-African e-Network supports Tele-medicine, Internet, Video conferencing and VoIP services, e-Governance, e-Commerce, infotainment, resource mapping and meteorological services. However, this study was only focused on the tele-education aspect, which had 52 learners enrolled for the Diploma in Aids and Family Education (DAFE), 55 doing the Master of Business Administration (MBA) in International Business and Human Resource and another 59 learners enrolled for the Bachelor of Science (BSc) Information Technology. The learning center is run by two members of staff; the project coordinator and the project engineer.

3.2.2 Entry to the Site and Time frames of the Research

The researcher's intention to conduct research at BOCODOL was first communicated to the Public Relations and Marketing Coordinator of BOCODOL informally on the 13th of March 2010, when the researcher visited the college. The informal visit was motivated by McMillan and Schumacher's (2010) suggestion to, "make a formal contact after informal confirmation that the research proposal will be positively reviewed" (p. 351). In the initial meeting I (the

researcher) introduced myself as a Master of Educational Technology and eLearning student at the University of the Witwatersrand, who had to conduct a study in partial fulfillment of the requirements the Master of Education by combination of coursework and research in a field related to his field of study, hence BOCODOL was found to be ideal. I briefed the Public Relations and Marketing Coordinator about the contents of my research proposal including the scope of the study, the research topic and aim, the research methodology, the description of the prospective participants, ethical considerations as well as the time when I wished to conduct the study. The Public Relations and Marketing Coordinator then referred me to the relevant person, the Director - Learner Support, who advised the researcher about the procedure that had to be followed in order to be granted permission to conduct the study.

Having followed the suggested procedure the college acceded to my request to conduct the study at their college (see Appendix A). Once granted permission to commence the study (Protocol number 2010ECE128C) by the Ethics Committee of the University of the Witwatersrand (see Appendix B), the researcher liaised with the 'gate keeper' (McMillan & Schumacher, 2010) who was identified by the Director-Learner Support. The gate keeper is normally a person familiar with the subject of study as well as knowing prospective informants, and in this case the gate-keeper was the Project Coordinator for online learning. The researcher then presented the 'gate keeper' with the desired profile of the prospective participants (described fully later in this section) at the beginning of second week of the phase of field work as he was not on duty in the first week. The Project Coordinator granted the researcher access to the eLearning laboratory, the relevant staff and students. The research was then conducted in several phases;

Phase 1: The initial phase of the research comprised of site fieldwork field work which was carried out between the 4th and the 22nd of October 2010.

Phase 2: A preliminary analysis of the data collected in Phase 1 was done between the 25th and the 29th of October 2010.

Phase 3: A second round of fieldwork was conducted during the third phase of the research. This was the period between the 1st and the 18th of November, 2010.

Phase 4: The final analysis of the data and writing of the research report was done between the 22nd of November, 2010 and 11th February 2011.

3.3. Data Collection Techniques and Instruments

3.3.1 Role of the Researcher

During the field observations, the role of the researcher was that of a non participant observer or a complete outsider (McMillan & Schumacher, 2010). The researcher did not play any role in the daily activities of the institution. The nature of the researcher's participation was 'detached', as McMillan and Schumacher (2010) describes, limited to "coming in, collecting data and then leaving" (p. 348). The researcher felt being a participant could make the researcher acquainted with the participants, which could make the participants eager to please the researcher (Borg, 1981) cited by Bell, (1999) inadvertently creating room for bias. In addition, the time frame of the research did not really allow for participant observation.

Data were collected from a variety of sources using various instruments, including interviews with staff using an interview schedule (Appendix C), interviews with students using the schedule shown in Appendix D, requests that students complete an emailed version of the same interview schedule, observations of the live sessions and perusal of various documents. These will be discussed more fully later in this section.

3.3.2. Interviews

Open ended interviews that lasted approximately thirty minutes were conducted at times and places that were convenient for the participants. The places included the participants' work places, homes and the learning center (BOCODOL). The instruments comprised questions aimed at soliciting insights into the challenges experienced by participants, the college support interventions for online learners, the self help strategies employed by the online learners as well as what the participants perceived to be helpful interventions. Open-ended questions helped to elicit opinions, feelings and attitudes which in turn helped to reveal perceptions and trends. The researcher was involved in, "probing, encouraging, listening attentively and clarifying the questions where necessary" (McMillan & Schumacher, 2010, p. 357). The interview schedule for staff is shown in Appendix C and that for students in Appendix D.

3.3.3. Perusal of Documents

Documents (Guidance and counseling Policy for BOCODOL and a brochure for the Pan-African e-Network) were made available for the researcher's perusal. The researcher was looking for any information that either implied or explicitly detailed any form of support

intervention in place for online learners. Using the interview schedule as a guide the researcher was precisely looking for hints of administrative, instructional, technical, counseling and tutorial support.

3.3.4. Live Sessions Observations

The researcher requested and was granted permission to attend and observe the live session classes during the first phase of the study. Observations have been described by McMillan and Schumacher (2010) as, “a way for the researcher to see and hear what is occurring naturally in the research site” (p. 350). A total of five sessions were attended in this period; three for the Diploma in Aids and Family Education (DAFE) and two for the Bachelor of Science Information Technology (BSC IT). An intended observation of a ‘logistics session’ was cancelled due to learners’ non attendance. The sessions were reported to be live online interactive sessions between learners and lecturers via video conferencing. During the logistics sessions learners are expected to seek any help from their lecturers they deem necessary. Attending and observing the live sessions was necessary for the following reasons:

- a. For the researcher’s introductions to the prospective participants.
- b. To observe the nature of support, if any, given during the live sessions.
- c. To see firsthand the environment within which the lessons took place.
- d. To observe how the lessons were conducted and the nature of teacher-learner interactions.
- e. To observe the level of learner-technology and learner-learner interactions.

The researcher took notes of what was observed and sought further clarification and validation of the ideas that emerged from the project coordinator and the project engineer who also attended the sessions. The same was done with the students. Introductions to the prospective participants were made during the lesson breaks and at the end of the lessons.

3.4 Participants

3.4.1 Sampling and Sample Size

The researcher used the purposeful nonprobabilistic sampling strategy described by Merriam, (2001), also known as criterion based selection (Le Compte & Preissle, 1993 cited by Merriam, 2001). According to Merriam, this strategy is suitable when the researcher wants to “discover, understand, and gain insight and therefore must select a sample from which most can be learned” (2001, p. 61). The strategy was found to be appropriate as the researcher wanted to discover the participants’ insights regarding what they perceived to be helpful

interventions for online learners. The technique for the purposeful sampling was snowballing, also known as chain or network sampling. Merriam (2001) says, “This strategy involves asking each participant... to refer you to other participants” (p. 63). This strategy was used as the participants were asked to suggest other prospective participants who could share insights pertaining to the study.

The maximum variation sampling strategy (Merriam, 2001) was employed to compile a profile of prospective participants. The strategy was used in order to get a wide variety of insights from participants of various characteristics such as novice learners, experienced learners who can study independently, participants with work and family commitments. A total of 17 out of 166 students enrolled for the courses and three members of staff participated in the study. The members of staff performed a range of duties from administrative and academic to technical support. The demographic information of the participants and the summary of their responses to the key questions are shown in Appendix E. Efforts were made to get responses from lecturers offering the courses from the universities in India. There was no response to the initial emails and the subsequent follow ups, also by email.

3.4.2 Recruitment of student participants for the first phase of research

The first seven participants that suited the profile of the prospective participants were suggested by the gatekeeper and the researcher contacted them during the second week of the first phase of the study. Five of these students agreed to participate in the study, and two were not willing to participate. The interviews of the five participants were all conducted at the research site. The demographic information and details of courses of the participants is shown in Appendix E. In addition to the first five participants, two learners from the first live session that was observed (a class for Diploma in Aids and Family Education) agreed to participate, making a total of seven. One of these students was interviewed at the learning center and the other at their home.

3.4.3. Recruitment of student participants for the third phase of the research

Following the preliminary analysis, the research site was revisited. This time the focus was on making efforts to follow up those students who were not attending regularly as their irregular attendance presumably indicated that they could be having problems that needed some form of support. I (the researcher) asked for the contact details of the learners who were not attending regularly and made efforts to follow them up. With the help of the programme

coordinator, the interview schedule was sent to 80 students using the college's mailing system. Only one learner responded. Subsequent follow ups by email did not yield any response. In addition to the email contacts, one participant living and working in Molepolole (50 Kilometers west of Gaborone) was suggested by the coordinator. The researcher contacted the prospective participant and made introductions. After a number of work related postponements, the interview finally took place at the participant's office. Asked if there was anybody that the participant knew who might have some insights regarding the study, the researcher was given contact numbers for the next two participants, one was said to be working in Otse, some 45 kilometers south of Gaborone and the other was in Molepolole. The participant in Otse suggested being interviewed at Gaborone and the other one in Molepolole. In addition to these, one more participant in Gaborone was suggested and agreed to participate making a total of four participants who were not regular attenders interviewed.

Efforts to get more participants were difficult due to low attendance of the live sessions. Permission was granted by the 'gate keeper' for the researcher to attend more live sessions in this phase of the research in the hope of meeting more prospective participants. After a number of sessions that did not take place because there were no students at all, the researcher finally attended a session for BSC IT where six out of the nine learners present agreed to participate in the study. Two were interviewed the same day after the lesson and the rest on different days that followed. Enquiries from the coordinator revealed that none of the learners present attended regularly. These six students interviewed brought the total number of students interviewed to 17.

3.4.4 Interviews with Staff

Three members of staff were interviewed at the research site during the first phase of the study. The staff participants were all suggested by the gate keeper who is also the project coordinator. Two of the staff participants, the project coordinator and the project engineer were the only staff members who managed the learning center. By virtue of being the administrator for the Moodle Learning Management System (LMS) that was being piloted, the third staff member was suggested by the gate keeper. The gate keeper thought the LMS administrator might also have some insights regarding support for online learners. The project coordinator explained how the learning centre operates as well as the support strategies that were in place for the learners. The interview with the coordinator revealed the administrative, instructional, technical, counseling and tutorial support strategies in place for

students. The strategies will be presented in the next chapter. The project engineer, who specialized on the technical aspect of the learning center, gave similar insights to those that were given by the coordinator.

The Moodle administrator first explained that the piloted project to host some of the BOCODOL courses fully online using the Moodle LMS was still being developed and there were no students enrolled as yet. The administrator was therefore not able to share insights about challenges experienced by online learners. When probed to disclose the support strategies that BOCODOL has in place for online learners, the administrator revealed that there was none and further suggested that the challenges would be addressed as and when they arose when the project was fully operational.

3.4.5 Terminating the Field Work

After interviewing 17 learners and three staff, the sampling was terminated for several reasons. Only one out of the 80 prospective students' participants who were contacted by emails responded. It was difficult to gain access to additional potential respondents due to low attendance at the live sessions where introductions were intended. Furthermore, the interviews in the second phase, although including interviews with non-attenders, did not reveal anything that was inherently different from the interviews already conducted in the first phase. As it appeared that a point of saturation (Lincoln & Guba, 1985 cited by Merriam, 2001) had been reached, sampling was terminated.

3.4.6 Reflections on the Student Interview Process

The snowballing approach was helpful as the researcher did not know the information rich participants before hand; therefore the referrals were helpful. Despite the limited time and scope of the study and the problems encountered in the field, the researcher feels the sample was still able to yield useful insights into the research problem / questions. The researcher believes that the sample, comprising as it did people with different needs and characteristics, did in fact yield the hoped for variety of insights about what the learners perceived to be impediments and helpful support interventions .

3.5 Data Analysis

The analysis of data in a way began after each interview with a summary of the main themes that emerged in each interview. When all the interviews had been conducted, each interview

session was analyzed individually to determine the segments from which different codes could be derived. McMillan and Schumacher (2010) define a data segment as, “text that is comprehensible by itself and contains one idea, episode or piece of information” (p. 370) and a code as, “a name or phrase that is used to provide meaning to a segment” [ibid., p. 371]. The segments were identified from the sentences and phrases obtained from the notes taken during the interviews. A list of codes was drawn from the data segments in each of the interviews.

After coding the data, the next activity was to determine the categories of the codes and classify them according to such categories. Categories have been defined as themes or terms that represent a group of similar codes (McMillan & Schumacher, 2010). The researcher classified the codes under the following themes: personal obligations, infrastructural challenges, institutional challenges and technical challenges. The themes were further refined and reclassified as challenges **beyond the institution’s control** such as the power cuts, low bandwidth, time differences, clashing international holidays and slow internet. Those themes which the researcher felt the institution could handle were classified as **institutional**, while **personal** was used for the themes that the researcher felt were within the learners’ ability to manipulate. Institutional themes were drawn from codes such as communication with lecturers, timely and detailed feedback, assistance with emailing assignments and technical problems such as when the server is down. Themes such as networking with other learners, commitment to school work, discipline to attend lessons, leave from work and computer skills and competencies, revealed by the data analysis, were classified as personal themes.

Initially, it was planned that data would be collected from two types of ‘information-rich participants’- staff (lecturers and coordinators) and students. Information-rich participants have been described by Patton (1990) as those from whom “one (the researcher) can learn a great deal about issues of central importance to the purpose of the research...” (in Merriam, 2001, p. 61). Upon realizing that attendance was low, the researcher decided to divide the students interviewed into two categories, those who attended regularly and those that did not attend regularly. The idea was to find out if there was anything inherently different about the experiences of the two groups, perhaps suggesting the need for different support interventions from the students who attended regularly. As efforts to get interviews from the lectures were futile, there was no category for lecturers in the data analysis.

Data from the three non teaching members of staff was analyzed separately from that of the student participants. As was done with the data from the student participants, segments of data were coded and the themes that emerged from the codes were classified categories and later patterns. The predetermined categories; *Challenges* and *College's Support Strategies* were used to classify the themes from the data.

Similarities in the emerging themes were sought, first among the codes from the data for the staff, then from the students who attended regularly and finally for those who did not attend regularly. The similarities and differences across the three groups were used to draw the patterns that emerged from the categories. According to McMillan and Schumacher (2010) patterns are relationship between categories. McMillan and Schumacher also submit that patterns relate to the conceptual framework of the study being undertaken. The discussion of the findings will show how the emerging themes compare with what is already known about the need for support for online learners.

3.6 Ethical Considerations

Care was taken to ensure that the study conformed to the ethical requirements of the University of the Witwatersrand. Prospective participants were informed at the beginning of the study that the study was being conducted in partial fulfillment of the requirements of the degree of Masters of Education; therefore data collected would be used for this purpose only. Participation was voluntary and participants were informed of their right to withdraw from the study at any time without risking any form of sanction. The participants were also informed beforehand that there was no form of incentive for participation. Confidentiality was ensured by using number codes instead of the participants' names. The numbers were given in numerical order that represented the order of the interviews for both the students and staff.

In order to minimize the inconvenience for the participants, all interviews were conducted on the dates, times and locations preferred by the participants. Participants were also informed that the interviews would be conducted in English; however, it was permissible to express themselves in Setswana - the vernacular language in Botswana. The feelings of participants who expressed discomfort with audio recordings were respected and no one was coerced in to being recorded. After data collection, the paperwork was kept under lock and key in the

researcher's apartment for the duration of the data analysis and report writing and was shredded once the report was finished.

3.7 Limitations

The researcher was aware of limitations such as validity and generalizability (Hamel, 1993), and bias, Guba and Lincoln (1981) in Merriam, (2001), associated with case studies which could also pertain to this study. One of the factors that could lead to bias was the fact that some of the participants were employees of BOCODOL, a situation that could tempt these participants to portray the college in a certain way, therefore affecting the validity of the data given. Merriam (2001) also quotes Guba and Lincoln (1981) who noted that, "case studies can over simplify or exaggerate a situation, leading to erroneous conclusions about the actual state of affairs" (p. 42). The researcher was particularly cautious of this when considering possible reasons for the low attendance. Merriam goes on to note that, "case studies are limited by the sensitivity or the integrity of the investigator" [ibid., p. 42]. Regarding this, the researcher tried to remain impartial and not show any emotions but rather just noted what transpired and what he was told. These are just some of the known weaknesses of the of case study research methodology that the researcher attempted to avoid.

Another limitation that was experienced was the time factor. The researcher had a limited time within which to conduct the study. While the university was amenable to extending the time for research report submission, the sponsor could not accede to the request for an extension because of the financial implications.

Difficulties Experienced in the Field. In addition to the aforementioned limitations, the following difficulties were experienced during data collection:

- a) *Absence of key informants.*** The first week (4th to 8th October, 2010) of the study was not productive as the key staff informants were not available at the site. The eLearning division personnel were said to be out of the country, in Namibia. The members of the learner support department were said to be in Maun, approximately 1000 kilometers away from the site. Both the eLearning and learner support personnel would only be available the following week. The first interviews started in the second week when the relevant personnel were available. The problem described here could have been avoided by rescheduling the dates of the site work.

- b) Low attendance:** *The researcher* had planned to make the initial introductions, explain the purpose of study as well as conditions for participation during the live sessions. The plan was in anticipation of a sizable attendance of the live sessions. Contrary to the researcher's expectation the attendance was low, as shown in Table 3. The data here shows the number of students that were said to be attending the live sessions regularly according to the records kept by the kept by project coordinator.

Course	Number on roll	Regular students
DAFE	52	3
MBA (Business)	36	3
MBA (HR)	19	1
BSC (IT)	59	15
Total	166	22

Table 3: Regular attenders for each course.

The researcher felt that the low attendance could be an indication that the online mode of learning was somehow problematic. The low attendance would thus point to the need for some form of support, further proof that the study is worth conducting.

- c. The 2010 Commonwealth Games:** The low attendance situation was said to have been worsened by the fact that the first research period (4th to 22nd October, 2010) coincided with the 2010 Commonwealth Games (3rd to the 14th October). Amity University was said to be one of the sponsors, and as such the academic activities for the University, including online activities were temporarily suspended. As a result of this, courses offered by Amity University were not available in the learning centers during the first phase of the interviews. Introductions to the prospective participants doing courses from Amity University were therefore done to individual learners through referrals by the coordinator. Effectively this meant that only students who attended lessons offered by the Indira Ghandi National Open University (IGNOU) were available to attend the live sessions during the initial phase of the study.
- d. Participants' preferences:** Three (3) prospective participants expressed willingness to participate but they preferred written interviews and not oral interviews. The researcher explained to them that while written interviews could ensure their comfort

written interviews would also deny the researcher the chance to probe, elicit clarity, direct the interview as well as observe the non verbal cues only possible in an oral interview. (Bell, 2001; McMillan & Schumacher, 2010) However, this request was acceded to on condition that prospective participants allowed the researcher to make a follow ups on issues that needed clarity. When the responses had been collected, the researcher read through the responses and made follow up appointments to seek elaboration or clarity where it was deemed necessary. All the three (3) participants agreed to the follow up sessions, and so in fact were interviewed.

3.7 Conclusion of the Chapter

In this chapter, an account of the research methodology and approach, description of procedures, the site, participants and sample size have been given. The time frames for the phases of the study have also been outlined. The data collection techniques and how data were analyzed is also described in this chapter. Despite the limitations mentioned, rich data was collected and will be presented and analyzed in the next chapters.

4 PRESENTATION OF RESULTS

4.1 Introduction

The results of the data analysis of this study, which sought to describe and analyse the nature of support and intervention strategies that BOCODOL has in place for online learners are presented in this chapter. The research question for this study was addressed through the following critical questions which were expounded in the research instruments:

- a. *What is the nature of the challenges facing online learners at BOCODOL?*
- b. *What is the nature of support that the college has in place for online learners?*
- c. *What do online learners think of the available support strategies and what do they believe would improve these strategies?*
- d. *What strategies do online learners employ to ensure their success or to combat the challenges that might lead to their failure?*

The results are presented in the following order: the challenges identified by staff, the nature of support strategies in place, the students' perceived value of the college's strategies, what the students suggested could be done, followed by the students' self support strategies. A reflection on the college's support strategies will be made in relation to the challenges, students' perceived value and the students' suggested interventions. The chapter will conclude by reviewing the main patterns that will be discussed in detail in the next chapter.

4.2 Challenges Identified by Staff:

Presented in Table 4 are challenges that the staff participants identified as the impacting on online learners. The challenges were revealed by Item 3 of the staff interview schedule (Appendix C) which was; *generally, what challenges impact on online learners at BOCODOL?*

As shown in Table 4 the findings revealed a wide spectrum of challenges ranging from social obligations, work related challenges, situational challenges such as distance from the learning center, internet related challenges to technical problems and cost of printing courses materials. The college staff offers a range support interventions to mitigate some of these challenges as shown later in this section.

Challenges Identified by Staff	
1	Learners' work commitments
2	Staying far from Gaborone where the learning centre is located
3	Technical problems e.g. when the portal server (local or main in Senegal) is down
4	Emailing of assignments
5	High internet tariffs
6	Money for printing the digital books and other learning materials
7	Clashes of holidays and international events
8	Time differences between Botswana and India
9	Meeting deadlines
10	Obtaining permission from employers to attend live sessions
11	Lack of internet connection from home
12	Social obligations

Table 4 Challenges identified by staff participants

4.3 Support in Place for Learners

4.3.1 Findings from the Interviews with Staff

Cognisant of the challenges that the students encounter, BOCODOL has some support interventions for the learners, the nature of which was revealed through staff interviews, observation of live sessions and documents (the BOCODOL Guidance and counseling Policy and IGNOU information brochure. Item 6 of the schedule sought to establish the *administrative, instructional, technical, counseling and tutorial* support interventions. The findings of the college's support interventions are presented next.

- *Administrative support:* The project coordinator assists learners with issues pertaining to enrollments, passwords, examinations and release of the results.
- *Instructional support:* The coordinator assists with the recording and archiving of the live sessions and also makes extended access to the learning center available to learners i.e. on Saturdays and Sundays.
- *Technical support:* The technical engineer on site supports learners by fixing the portal and server related challenges.

- *Tutorial support:* Archived electronic books, a digital library, archived lesson presentation slides and the emailing of assignments to learners who are not able to access the portal.
- *Counseling support:* The provision for counseling support was made by way of the ‘logistics sessions’. The sessions were reported to be live online interactive sessions between learners and lecturers via video conferencing. During the sessions learners are expected to seek any help from their lecturers they deem necessary.

Additional insights into the college’s support strategies were discovered through observations of the live session and the documents mentioned earlier in this chapter and are presented next.

4.3.2 Findings from the Observations of the Live Sessions

From the observations of the live sessions, the support interventions described next were noted. Clarification of the support interventions was sought from the staff and some of the student participants.

The Learner-Lecturer Interactions: The blended mode of online delivery used at the learning center has a number of supportive features. A hand held microphone is used when asking questions and these are answered real time. Question time is normally at the end of each lecture. The questions are asked in turn by students from a number of countries as the lectures are broadcast simultaneously in a number of countries. Students from different learning centers can actually hear the questions asked by other students in other countries as well as the responses to the questions raised. An alternative way of presenting the questions to the lecturers is by using a messaging system in the three computers provided in the lab. The message appears on the screen of the lecturer who will then respond when it is opportune to do so.

The project engineer: There is an information and technology engineer who has to be present all the time when the classes are in session. The engineer is on standby to assist with any technical problem that may occur such as local servers being down. The engineer is in constant liaison with other engineers in India and Senegal where the main server is hosted.

The project coordinator: The project coordinator works hand in hand with the project engineer, and also works all week days including weekends. The coordinator mainly handles the administrative and academic side of the project. Duties related to this function entail among others, advertising the courses, and processing the enrollments, analyzing and publishing results, recording and archiving live sessions, assisting students with emailing their assignments and conducting examinations. The coordinator also handles the technical duties in absence of the project engineer.

Recording of the live sessions: As the live sessions are in progress, the coordinator or the engineer records and archives the lessons. The material can then be accessed through the internet wherever the students have access. For those who do not have access to the internet, the coordinator or the engineer helps them by recording the material on to a CD ROM which the learners have to provide.

4.3.3 Findings from Documents

The researcher observed that the Guidance and Counseling Policy of BOCODOL is fairly comprehensive. The policy meticulously details support initiatives that span from pre enrollment to completion of study using media such as email and SMSs to maintain dialogue between the college and the learner and between the tutor and the learner. The information brochure, Pan-African e-Network (IGNOU), also sets out certain support strategies available to students – such as the provision for downloading course content from the Pan-African e-Network portal and accessing recorded sessions through the knowledge management system. However, neither the policy nor the brochure (IGNOU) perused made explicit pronouncement of the support interventions in place for online learners in particular. The value of the aforementioned strategies is reviewed later in this section. Presented next are the findings that reveal the students' perceived value of the aforementioned support strategies.

4.4 The Perceived Value of the College Support Interventions

Presented in Table 5 are the findings of the participants' perceived value of the support offered by the college. Item 7 and 8 of the participants' interview schedule gave insights into the value of the support. The questions were:

- a. *In what ways does the college support you to be successful in your course?*
- b. *Do the college's support strategies meet all your needs?*

The responses were divided into three categories; *Satisfied*, *Not satisfied* and *Not aware of Support* as shown in Table 5.

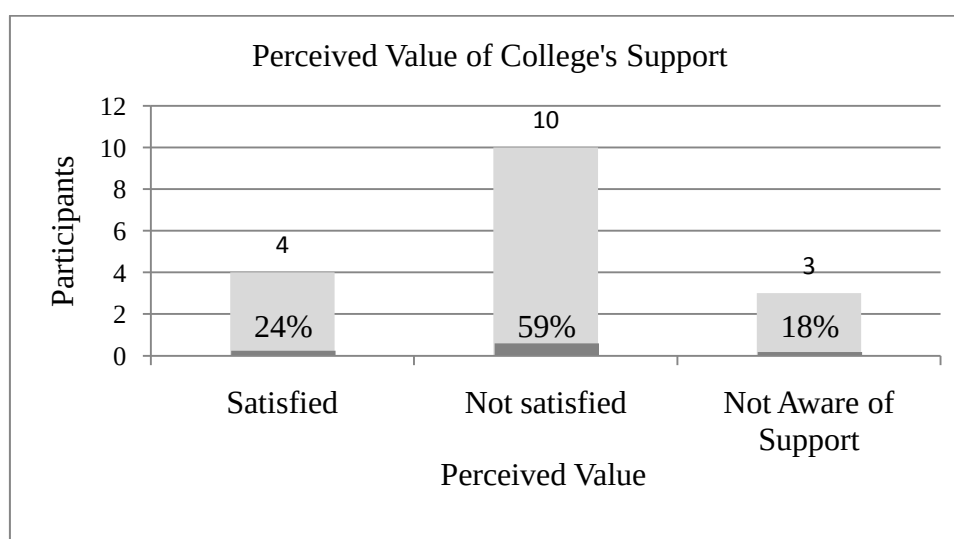


Table 5 Perceived value of the college's support interventions

24% of the participants expressed satisfaction while 59% indicated that the support interventions did not meet all of their needs. The dissatisfaction was shown by responses such as: *"They don't. We need help with assignments and more feedback"* (Participant 09). 18% expressed lack of awareness of the support in place and this was shown by responses such as: *"In fact there is none, may be they are not well communicated if there are any"* (Participant 08), and *"I am not aware of any"* (Participant 013). The low attendance of the live session could possibly explain the reason why some participants were not aware of the support strategies in place.

4.5 Challenges Identified by Learner Participants

The next section of this chapter looks at the findings of the challenges identified by the students, what the students suggested should be done to mitigate the challenges and finally, the support strategies that the students themselves employ to mitigate the challenges that they reported to be experiencing. Items 1, 3, 6 and 11 in the interview schedule (Appendix D) gave insights into the challenges faced by students enrolled for the online courses. The questions were intended to yield responses that showed the challenges as the participants experienced and perceived them, and the questions were:

- a. *What is it like to do your course by online mode?*
- b. *What problems do you often encounter as an online learner?*

- c. What do you often experience as a distance/ online learner that people may not be aware of or take for granted?
- d. How are the following helpful or not helpful in aiding your successful completion of your course? A. Your current computer skills, B. Internet access and C. Independent studying.

The responses to these questions have been categorized into 16 themes, and are shown in Table 6.

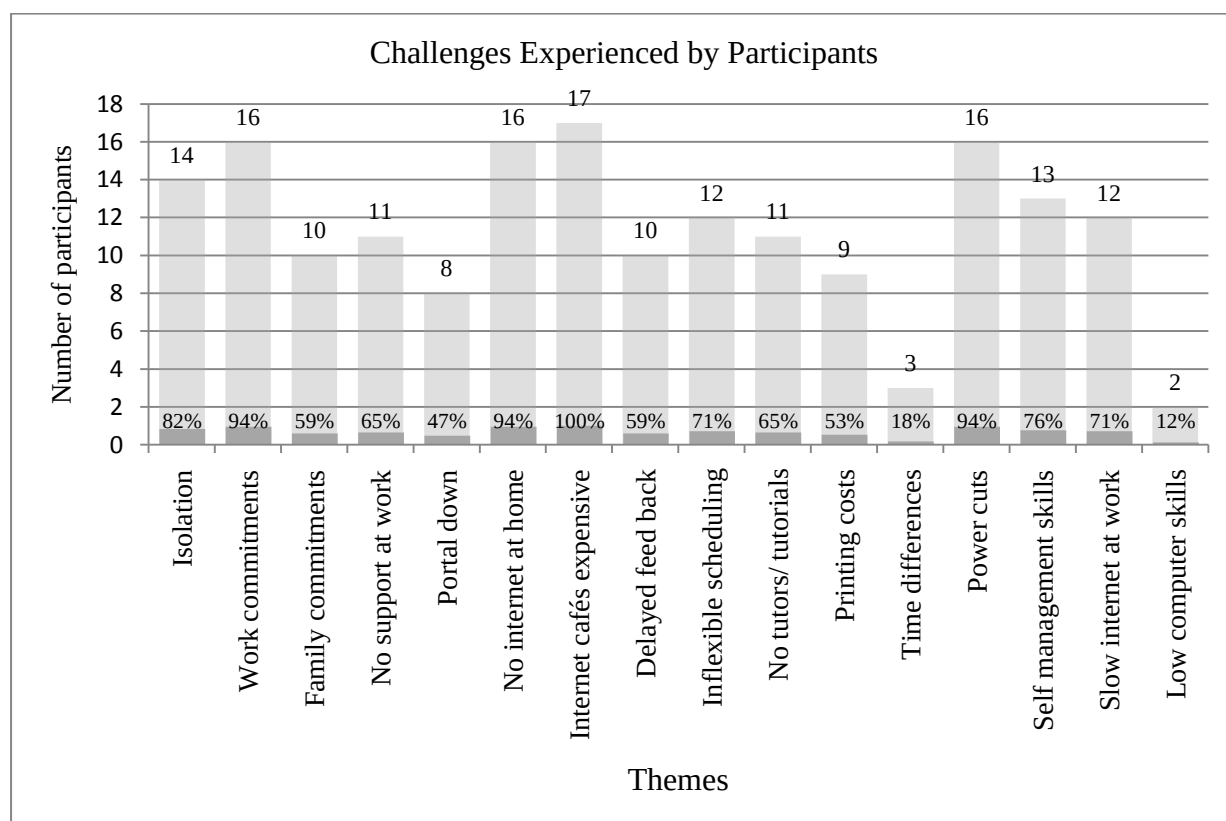


Table 6: Themes showing challenges experienced by the learner participants

The themes represented in Table 6 were derived from a classification of codes that emerged from responses by the participants. For example, the theme isolation has been used to represent responses implied by words and phrases such as; *lonely experience* and *you're alone most of the time*. Similarly, 'power cuts' entails an array of responses such as; *load shedding*, *power interruptions*, *power failure* and *power cuts*. The phrase self management has been used to represent responses pertaining to personal challenges such as; *low motivation*, *it's boring*, *lack of commitment*, *discipline* and *time management*. The results show that work commitments, (cited by 94% of the participants), inflexible scheduling of live sessions (cited by 71%), self management skills (cited by 76%) and internet related problems,

(cost cited by 94% and access by 100%), were the leading challenges experienced by the participants. Factors amounting to isolation also ranked high, with 82% of the participants citing this among the challenges they experienced. On the lower end of the continuum was lack of computer skills (12%). The low ranking for the computer skills is contrary to the researcher's expectations based on the assumption that adults were 'digital immigrants' (Prensky, 2001), and therefore lacked computer skills. Between the high ranking and low ranking challenges, were factors related to feedback, tutors and tutorials, support from work, family commitments, cited on average by 62% of the respondents.

4.5.1 Patterns from Challenges Identified by Learners

The themes shown in Table 6 were re-organized in to groups, also called 'patterns' (McMillan & Schumacher, 2010). The patterns are; *'Institutional'*, *'Beyond the Institution'* and *'Personal'*. The name *'Institutional'* has been used to represent the challenges that are in a way direct responsibilities of the learning institution such as providing access to learning materials, tutorials, feedback and scheduling of live sessions. *'Beyond the Institution'* has been chosen to represent challenges that the researcher considered to be outside the institution's jurisdiction. The *'Personal'* category represents challenges that are the responsibility of the individual learners, e.g. self management, motivation, commitment, family commitments and work related challenges. The categories are shown next in Table 7.

Personal	Institutional	Beyond the Institution
Isolation	Tutors / tutorials	Power cuts
Printing costs	Feedback	Slow internet
Work commitments	Flexible scheduling	Expensive internet
Support at work	Portal problems	Family commitments
Support at home		Work commitments
Self management		Time differences

Table 7: Patterns representing the categories of the challenges

4.6 Learner's Suggested Helpful Interventions

In view of the challenges identified by the students, presented next are the findings of what the students suggested would be helpful support interventions. Item 9 revealed what the participants suggested could be helpful support interventions. The question was; *what more*

do you think could be done to help you complete your course successfully? Table 8 shows the responses that emerged as suggested helpful interventions were classified in to 11 themes.

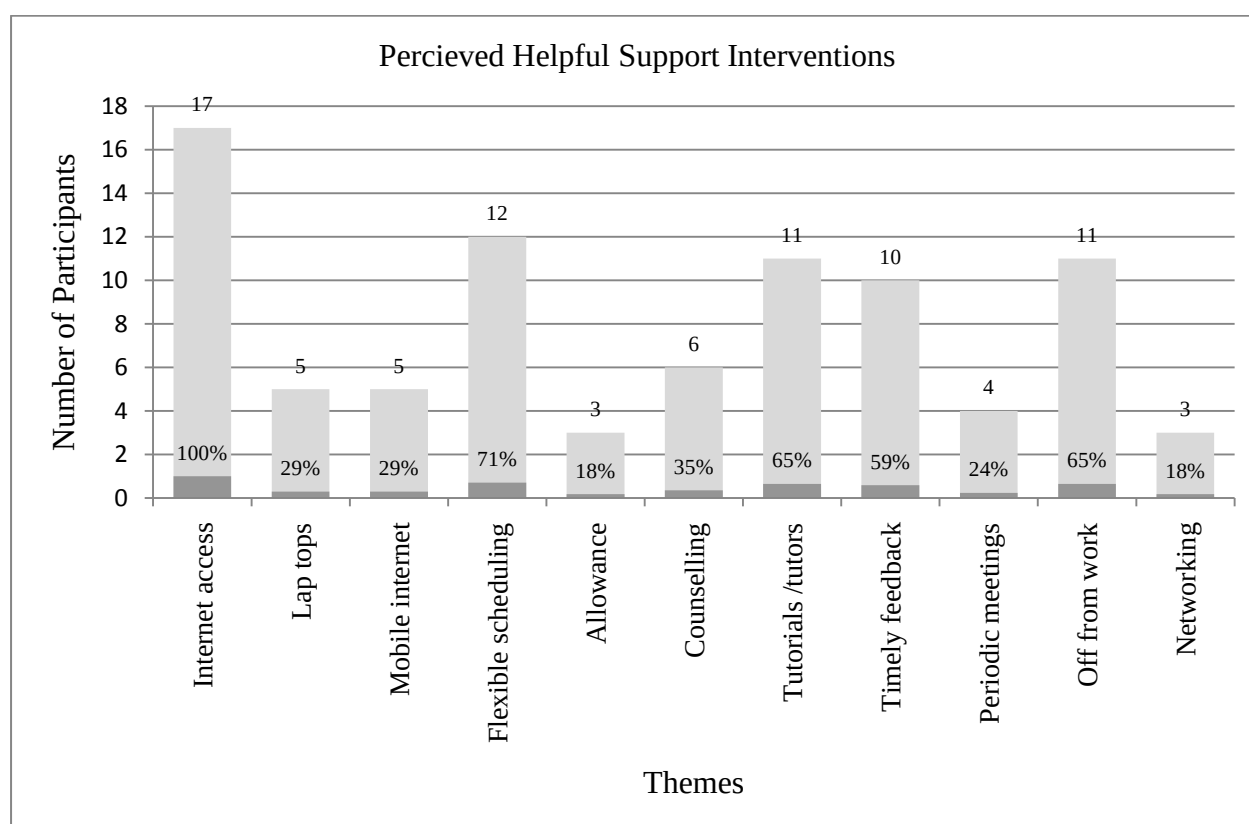


Table 8: Participants' suggested components of a helpful institutional support system

The results shown in Table 8 show that subsidized access to the internet is the most sought after support intervention, with all the participants citing it among their set of perceived helpful strategies. Some participants suggested that this could be possible if the learning center had an internet enabled laboratory with enough computers for all students. As it was at the time of this study, the learning center did not have provisions for the learners to access the internet. The need for flexible scheduling of the live sessions also ranked high (71%). The need for tutors and tutorials (65%) and timely feedback (59%) were perceived to be the next most helpful support interventions.

Upon probing about who the participants thought was responsible for providing the suggested support interventions, two patterns emerged, the institution, and the Employer/ Self. Table 9 shows how the themes were classified under the two patterns.

Institutional	Employer / Self
Tutors and tutorials	Laptops
Internet access at the Learning Center	Mobile internet
Counseling	Allowance
Feedback	Off / leave from work
Periodic meetings	
Networking	
Flexible scheduling	

Table 9: Patterns of suggested helpful support interventions

4.7 Self Support Strategies

While hoping for the suggested support interventions, the participants then revealed the self support the strategies they employed to mitigate the challenges they encountered. Item 10 of the interview schedule gave insights to the critical question; *what strategies do online learners employ to ensure their success or to combat the challenges that might lead to their failure?* The questions read: *How do you overcome the challenges that could make you fail as a distance / online learner?* The responses given reflect what the learners reported to be doing as their own support initiatives are:

- a. *Accessing the internet at work to do course activities*
- b. *Paying for printing, downloading an*
- c. *Making arrangements for babysitting and other family responsibilities*
- d. *Asking colleagues to swap shifts at work in order to attend live sessions*
- e. *Collaborating and networking using Facebook*
- f. *Collaborating with others at some agreed venues, e.g. libraries*
- g. *Foregoing social engagements*
- h. *Learning more computer skills*
- i. *Discipline and commitment*
- j. *Doing household chores in turn with spouse*

Clearly, the suggested support interventions could address some of the challenges observed by the students and indeed the staff. A reflection on the main findings of this study is presented next in order to establish the degree to which the findings address the research questions and by extension, the research problem. The reflections will help the researcher to determine the key issues that need further discussion in view of the available literature, in the next chapter.

4.8 Reflection on the Main Findings

The section on reflections is guided by the critical questions that address the research question. The first is: *What is the nature of the challenges facing online learners at BOCODOL?*

The findings from the staff and the students have confirmed the presence of a variety of challenges that impact up on learners, which indeed warrant the need for support. The patterns of the challenges range from those that the researcher considered to be *personal*, *institutional* to those that are *beyond the institution* as briefly outlined next.

Beyond the institution

Limited access to the internet: 94% of the participants had access to the internet at work

expensive. Lack of access to the internet will be discussed in the next chapter as a form of digital divide.

Power cuts (Load shedding). Power cuts by the Botswana Power Corporation (BPC) were also said to be very frustrating, especially if the cuts coincided with the live sessions or online tests. It has been observed that the load shedding would also frustrate efforts of synchronous chat. The BPC confirmed the load shedding exercise as shown by the schedule (see appendix F). The information sheet shows the affected areas in Gaborone and other areas but does not show times for the power cuts, making it difficult for online learners to plan their activities in such a way that the load shedding will not affect them.

Institutional

Technical problems: The study revealed that those who had access to the internet occasionally experienced a host of technical problems related to the internet such low bandwidth, slow internet, difficulty in accessing the students' portal and as one participant put it, "*downloading materials or emailing assignments can take forever*". Clearly, all these problems necessitate some form of intervention.

Scheduling of lessons: The institution experienced difficulties in scheduling lessons as there are many courses and units presently offered by IGNOU and AMITY university. The inflexible scheduling coupled with other factors such as residing far from Gaborone and work commitments impacted on the learners' ability to attend the live sessions.

The next section focused on the second critical question to reflect on the nature of support that BOCODOL has in place to mitigate the challenges identified. The second question is: *What is the nature of support that the college has in place for online learners?*

The findings confirm that BOCODOL does have supportive strategies in place to mitigate the challenges. The multifaceted interventions are targeted at a range of challenges including among others; administrative, instructional, technical, counseling, tutorial dimensions of support. Some of the interventions are as follows:

- a. Recording lessons and content materials is a helpful intervention for the learners who do not have access to the internet.
- b. Extended access to the learning center. Opening the Learning Centre on weekends is surely a thoughtful and helpful support intervention for learners who cannot access the learning center during the week as a result of work related commitments.
- c. Emailing assignments for learners who fail to send emails for various reasons is a helpful instructional support initiative.
- d. Logistics sessions provide a chance for technology mediated face to face learner-lecturer interaction in order to address some of the concerns that the students might raise and include counseling support.

Clearly the support interventions do tally with some of the challenges but the findings has revealed some shortcomings. For instance there is no formal documentation that explicitly shows what is in place specifically for online learners. Perhaps this explains why some participants claimed lack of awareness of the interventions as shown by responses like: *“In fact there is none, may be they are not well communicated if there are any”* (Participant 08), and *“I am not aware of any”* (Participant 013).

In addition, while the support interventions are helpful, they seem to be inadequate or not entirely aligned with what the learners themselves perceive to be challenges that impact on them. This shortcoming was revealed by findings of the third critical question which is: *What do online learners think of the available support strategies and what do they believe would improve these strategies?*

The inadequacy of the perceived value of the support interventions was revealed by responses such as: *“No. We need help with laptops and mobile internet”* (Participant 01). Clearly this is

beyond the institution; but responses such as: *“They don’t. (The support interventions) We need help with assignments and more feedback”* (Participant 09), point to a critical shortcoming about tutorials and feedback support. The responses show some of the dimensions of supportive interventions that learners thought would add value to what is in place.

Even though the logistics sessions were said to cater for the learner-lecturer technology mediated interactions, the short coming for this support strategy is that it is time and location bound as such sessions are only offered periodically at the learning center. Therefore participants living outside Gaborone do not benefit from them. The logistic sessions are only facilitated by IGNOU and as such participants taking courses offered by the AMITY University do not have any provision for face to face tutorials whether technology mediated or physical personal contact.

In spite of online learning being acclaimed for the learner-learner, learner-lecturer interactive and social collaborative possibilities, there was no evidence to suggest that the support strategies do facilitate such interactions and collaboration. The documents perused are silent on the collaborative dimension of support. This could possibly explain the reason for the prevalence of challenges that amounted to the theme *‘Isolation’*. The challenges were captured in responses such as:

“It is lonely as you are alone most of the time” (Participant 03).

“We don’t know each other, everyone is an island” (Participant 06).

Participants 06, 08, and 09 also indicated the need for periodic meetings to enhance a sense of community among learners. Certainly these concerns reveal lack of or inadequate provisions for interactions and social collaboration.

The findings have shown that the set of challenges identified by learner participants is broader than the set identified by the staff. While there is some overlap, the issues of isolation, and those related to feedback, tutors and tutorials were not foregrounded in the staff’s lists of challenges. This might be a result of the fact that the staff interviewed were not directly involved with teaching and learning as the researcher had not been able to engage with teaching staff. However, it is more likely that the institution is not acutely aware of these issues. This would help explain why the support in place does not adequately address them, as shown in the students’ dissatisfaction with the level of support offered in regard to them.

Finally the reflection on the last critical question is presented. *The question is: What strategies do online learners employ to ensure their success or to combat the challenges that might lead to their failure?* The findings have confirmed that the participants do employ a range of self help strategies to address some of the challenges they encountered as shown by the examples that follow.

a. Examples of the self help strategies for the internet related challenges

- *Accessing the internet at work to do course activities.*
- .

b. Strategies for mitigating work related commitments

- *Swapping work shifts with colleagues in order to attend live sessions*

c. Strategies to mitigate the need for face to face tutorials

- *Collaborating with others at some agreed venues, e.g. libraries*

d. Strategies to mitigate isolation

- *Collaborating and networking using Facebook*

e. Support strategies offered by family

- *Doing household chores in turn with spouse*
- *Arranging babysitting arrangements with relatives*

The aforementioned self help strategies clearly link directly with some of the challenges identified by the students.

4.9 Conclusion of the Chapter

The findings show that there are many challenges facing students in the online courses at BOCODOL. Some of these challenges are beyond the control of the institution. However, the study also shows that there are several challenges which link directly to the institution itself. These include the often delayed feedback, lack of tutors and tutorials (be it face to face or technology mediated) and virtually non- existent learner-learner interactions. In addition, while isolation is a personal challenge, the need for support for learners in overcoming this can be said to be an institutional issue, especially in the light of the importance of social learning as related in Chapter 2. While the institution appears to have some sense of the challenges facing students and has put some strategies in place to support them in dealing with these, institutional perceptions of challenges appear limited and support strategies tend to be either too limited, or not perceived as useful by the students. Students perceptions of

the challenges facing them and of what might be supportive interventions for them in dealing with these provide useful information for developing an appropriate learner support strategy at BOCODOL. The next chapter will discuss the findings further, and make recommendations about how learner support at BOCODOL might be strengthened. In particular, the affordances of Web 2.0 technologies will be considered.

5 DISCUSSION OF THE RESULTS

5.1 Introduction

The discussion of the results of the data analysis is presented in this chapter. The challenges facing online students at BOCODOL that were identified in the findings have been categorized as *Beyond the Institution*, *Institutional* and *Personal*. The three categories will be described and discussed taking into cognisance their implications for learner support. As with other similar studies in the literature (Rezabek, 1999; Garland, 1993; Leggett & Persichitte, 1998; Cegles, 1998) cited by Muilenburg and Berge (2001), grouping the impediments into categories that represent similar patterns (McMillan & Schumacher, 2010) makes the discussion easier. Discussing each impediment individually would be a tedious job as the impediments are too many.

The purpose of this study was to establish the nature of the challenges facing online learners at BOCODOL, mitigating strategies put in place by the institution and by students themselves to deal with these, and students' perceptions of these mitigating strategies. The study was premised on predicted benefits of integrating Information Communication Technologies (ICTs), especially the internet, in distance learning on one hand, and the impediments that hamper quality online learning experiences on the other. This study has confirmed what is already known about both the benefits and the impediments of online learning. Benefits such as flexibility of time and location have been cited by the respondents. Also confirmed were barriers found in the literature such as costs and motivators, feedback and teacher contact, student support and services, alienation and isolation and lack of experience (Galusha, 1997).

Despite the challenges encountered, online learning has been shown to remain an ideal alternative for adults, such as those in this case study, who cannot study full time because of time, work and family responsibilities. This perception was shown by responses such as:

"You can attend to other commitments while you study" (Participant 01).

"I study at my own pace" (Participant 02).

"I am able to pursue other interests while studying" (Participant 011).

"You do not always have to be in class. You can study from wherever the internet is available" (Participant 013).

"I work fulltime, so no time for full time courses" (Participant 016).

"It's an opportunity of a life time" (Participant 09).

However, at BOCODOL, problems related to timely feedback, limited interactions, isolation and low motivation have been perceived as barriers to students deriving all the potential benefits from an online course. The comments below selected from many similar ones of other students, reflect these perceptions.

“Feedback takes a long time” (Participant 08).

“We do not know each other” (Participant 06).

“It is boring as you are alone most of the time” (Participant 01).

“Commitment and discipline are needed for one to succeed” (Participant 09).

The aim of this discussion is to argue for the use of Web 2.0 technologies as part of a support intervention that can remedy some of the *Institutional* and the *Personal* concerns such as collaboration, interactions (learner-learner, learner-teacher and learner-technology), isolation and feedback. The discussion will therefore draw from the works of researchers such as Downes, 2005; Hart 2008, 2009b; Salmon, 2002; Ribchester et al., 2007; Rosen & Nelson, 2008; Anderson, 2008; Finkelstein, 2006; Palloff & Pratt, 2010 and Carr, Jaffer & Smuts, 2009. These researchers are among those who have advocated for the use of Web 2.0 technologies to transform online learning from a mere medium of to a virtual platform for learning with various interactive and collaborative possibilities – a defining character of online learning. The arguments of these researchers will be used to substantiate the researcher’s claim that it is necessary to integrate the use of Web 2.0 technologies in to the existing learner support intervention in order to make them relevant and meaningful in the 21st Century.

Distance learning has developed from the traditional mail and radio based mode of delivery to the electronic based delivery mode. The advent of the internet and later the Web 2.0 internet technologies have made possible some collaborative and interactive dimensions of distance learning which were virtually nonexistent in mail and radio based distance learning. Social networking platforms such as Facebook, MySpace, Linkedin, SecondLife and Elgg have been credited with giving their users a sense of belonging and social presence (Mann-Cross, 2010). In this discussion, the researcher argues that Web 2.0 technologies have the potential to remedy some of the challenges that have been known to impede distance education in general, and which this research found to apply at BOCODOL - such as isolation, the need for collaboration, and detailed and timely feedback. Furthermore, the researcher argues that the traditional forms of learner support, such as those suggested by Robinson (1995) and Tait (1995) need to be augmented by innovations that will explicitly cater for online learners. In the next part of this chapter, the patterns that emerged from the

data analysis, starting with the *Beyond the Institution*, are discussed. How the findings of this study relate to other research findings noted in the literature review.

5.2 Challenges that are Beyond the Institution

The name '*Beyond the Institution*' has been chosen to represent challenges that the researcher considered to be outside the institution's jurisdiction. The institution is this study refers to the learning center where this study was conducted. The researcher felt that the institution has limited capacity to deal with challenges such as the high internet costs (connectivity and internet cafés), lack of internet access at home, lack of various forms of support from work and home and power interruptions. Power cuts for instance were sanctioned by the Botswana Power Corporation (BPC) as a contingency measure to deal with the reduced quota of electricity imported from the neighbouring South Africa. Internet availability, in terms of infrastructure, penetration and tariffs are to a large extent a prerogative of the Botswana Telecommunications Corporation (BTC) (see Appendix G). Similarly work and family related commitments and responsibilities are valid concerns but are beyond the institution's control. Be that as it may, the internet related concerns that emerged in this study, amount to the various manifestations of the digital divide - one of the most contentious concepts in online learning debates. The discussion therefore starts with two manifestations of the digital divide (physical access and prohibitive internet costs) as the main themes of the *Beyond the Institution* impediments.

5.2.1 The Digital Divide – Physical Access.

It is not surprising that all the participants made reference to internet related impediments (availability, access and costs) since the internet is the epitome of online learning. The statistics for Africa shown Table 10 confirm low internet penetration as a challenge for most African countries. The statistics in Table 10 indicate that Botswana experienced a user growth rate of 700% between the years 2000 and 2010. However, only 5.9%, of the estimated population of 2, 029 307 has access to the internet, which translates to 120 000 people. Thus, while a growth of 700% may seem to be some exponential growth, the internet is still only used by a small proportion of the population of Botswana. Undoubtedly, the high cost of accessing the internet is a significant reason for the low rate of penetration. In other words, the physical access digital divide is exacerbated by the cost of access.

INTERNET USAGE STATISTICS FOR AFRICA						
AFRICA	Population (2010 Est.)	Internet Users Dec/2000	Internet Users Latest Data	Penetration (% Population)	User Growth (2000-2010)	% Users in Africa
Algeria	34,586,184	50,000	4,700,000	13.6 %	9,300.0 %	4.3 %
Angola	13,068,161	30,000	607,400	4.6 %	1,924.7 %	0.5 %
Benin	9,056,010	15,000	200,000	2.2 %	1,233.3 %	0.2 %
Botswana	2,029,307	15,000	120,000	5.9 %	700.0 %	0.1 %
Burkina Faso	16,241,811	10,000	178,200	1.1 %	1,682.0 %	0.2 %
Burundi	9,863,117	3,000	65,000	0.7 %	2,066.7 %	0.1 %
Cameroon	19,294,149	20,000	750,000	3.9 %	3,650.0 %	0.7 %
Cape Verde	508,659	8,000	150,000	29.5 %	1,775.0 %	0.1 %
Central African Rep.	4,844,927	1,500	22,600	0.5 %	1,406.7 %	0.0 %
Chad	10,543,464	1,000	187,800	1.8 %	18,680.0 %	0.2 %

Table 10. World internet usage Source: <http://www.internetworldstats.com/stats1.htm>

5.2.2 The Digital Divide – Prohibitive Internet Costs

The participants have submitted that internet connection at home is not affordable and that the internet cafés are also expensive. The responses have shown that even where the internet is available, the cost of access, are a hindrance to its use. The difficulty in accessing the internet as a result of cost implications of both the internet and related equipment reveals a valid socio-economic dimension of the digital divide (Lane, 2009) that is beyond the institution's control. The following extract, also from the Internet World Stats web site confirms the cost of accessing the internet as a global manifestation of the digital divide:

With regards to the Internet, the access is only one aspect... *Today the most discussed issue is the availability of the access at an affordable cost...* disadvantage (the digital divide) can take such forms as lower-performance computers, lower-quality or high price connections... (2010).

The currency of the problem of access in Botswana has been validated further by the newspaper article entitled '*Internet penetration low*' in *The Midweek Sun (Botswana)*, November 2010 (see Appendix G). In the article, the high cost of ICT infrastructure and computers, low computer literacy and the sparse population are said to be among the factors that exacerbate the problem of low internet penetration in Botswana. It is against this background that the digital divide confirmed by this study is classified as a factor beyond the control of the institution where this study was conducted.

5.2.3 Conclusion of the Beyond the Institution Challenges

Whilst the internet related challenges have been found to be beyond the institution's control, the researcher argues that a suggestion by the participants to grant them access to the internet

enabled facilities at the Learning Center is reasonable. It is undisputable that the internet, computers and related peripherals are expensive as shown by literature (Lane, 2009; Isaacs, 2007) and reiterated in the media by telecommunications corporations such as the (BTC) and Internet World Statistics. These expensive components are the core tools of the trade for online learning. Any institution that aspires to provide quality and meaningful online learning experiences is obliged to facilitate access to such facilities. I therefore concur with the participants that it would be a helpful support intervention if the Learning Center granted the learners' access to resources such as the internet enabled lab, computers and printing facilities. Discussed next is the *Institutional* category of challenges.

5.3 Institutional Challenges

The researcher has chosen the word '*Institutional*' to represent the challenges that are in a way directly related to the core activities of the learning institution. The results of the data analysis revealed among others the need for timely and detailed feedback, the need for tutors and tutorials and learner-learner collaboration. Isolation was classified as a personal challenge – but is in fact in the domain of the institution too. The need for collaboration expressed by participants depicted a sense of isolation experienced by them. A detailed discussion of the aforementioned institutional challenges follows next, beginning with the need for timely and detailed feedback.

5.3.1 Feedback

The importance of prompt and elaborate feedback in any learning institution or activity cannot be overemphasized as Kim, Smith, and Maeng (2008) argue. Unfortunately, this is one area where participants expressed dissatisfaction. 59% of the participants bemoaned the fact that feedback was often late and lacked detail save for the score or grade. Literature shows that detailed and understandable feedback promotes future engagement (Brown, Glover & Stevens, 2006) cited by Ribchester et al., (2007). The quality of feedback therefore depends on its provision for reflection, engagement and future development. The dissatisfaction regarding the delayed feedback is captured in the responses such as:

“Exams and assignments have to be released as soon as possible, they tend to demotivate the drive we have” (Participant 014).

“Results take too long... and they don't return the marked original, just the results' slip” (Participant 08).

“Feedback takes time; you don’t get what you submitted marked. You get the marks”
(Participant 06).

Literature abounds with Web 2.0 technologies that can mitigate the feedback related challenges such as those revealed by this study by online learners at BOCODOL. For instance, Ribchester et al., (2007), Palloff and Pratt (2010), Anderson (2008), and Middleton (2008) are among the proponents for the use of a range of audio tools such as podcasts to record feedback to make up for the oral component that is often missing in feedback for online learners. Responding to a blog post by Anderson (<http://terrya.edublogs.org/2008/12/14/marking-with-voice-tools/>), a certain Tannis expressed being intrigued by the various ways that it is now possible to do add audio to feedback. Among the various possibilities, podcasting is given next as an example.

Podcasting

The use of podcasting in education has been advocated by researchers such as Anderson (2008), Ribchester et al., (2007), Flanagan and Calandra (2005) and Palloff and Pratt (2005) as an alternative way of providing feedback. Podcasting is credited for bringing in the vocal aspect of feedback – an aspect that is currently enjoyed by campus based students. In addition to adding voice to feedback another advantage as Ribchester et al., (2007) argue, is that they can be downloaded and stored in a variety of portable devices such as flash drives, iPods, MP3 and MP4 players and mobile phones and then listened to at the learners’ convenience. Podcasting could add value to the feedback for online learners at BOCODOL who bemoaned feedback that lacked detail, often limited to the marks or grades.

5.3.2 Tutors and Tutorials

65% of the participants regarded the lack of tutors and tutorials as an impediment, and believed that the provision of tutors and tutorials would be a helpful support intervention. Online tutoring has been defined as e-moderation (Packham, Jones, Thomas, and Miller (2006) citing Salmon (2000). E-moderation essentially involves similar activities as in campus based learning such as, “class discussions, role-playing, case studies, question and answer sessions and assessment” (Packham et al., 2006, p. 242). The researcher argues that Salmon’s (2002) five step e-moderation model (Figure 2) could be used as an entry point in the provision of tutorial services needed by BOCODOL students. The access and motivation,

online socialization and information exchange activities could create the necessary learner-lecturer rapport, learner-learner interactions and therefore set a conducive atmosphere for online tutoring. In addition to tutoring a sense of social presence and belonging would be created, eliminating isolation at the same time.

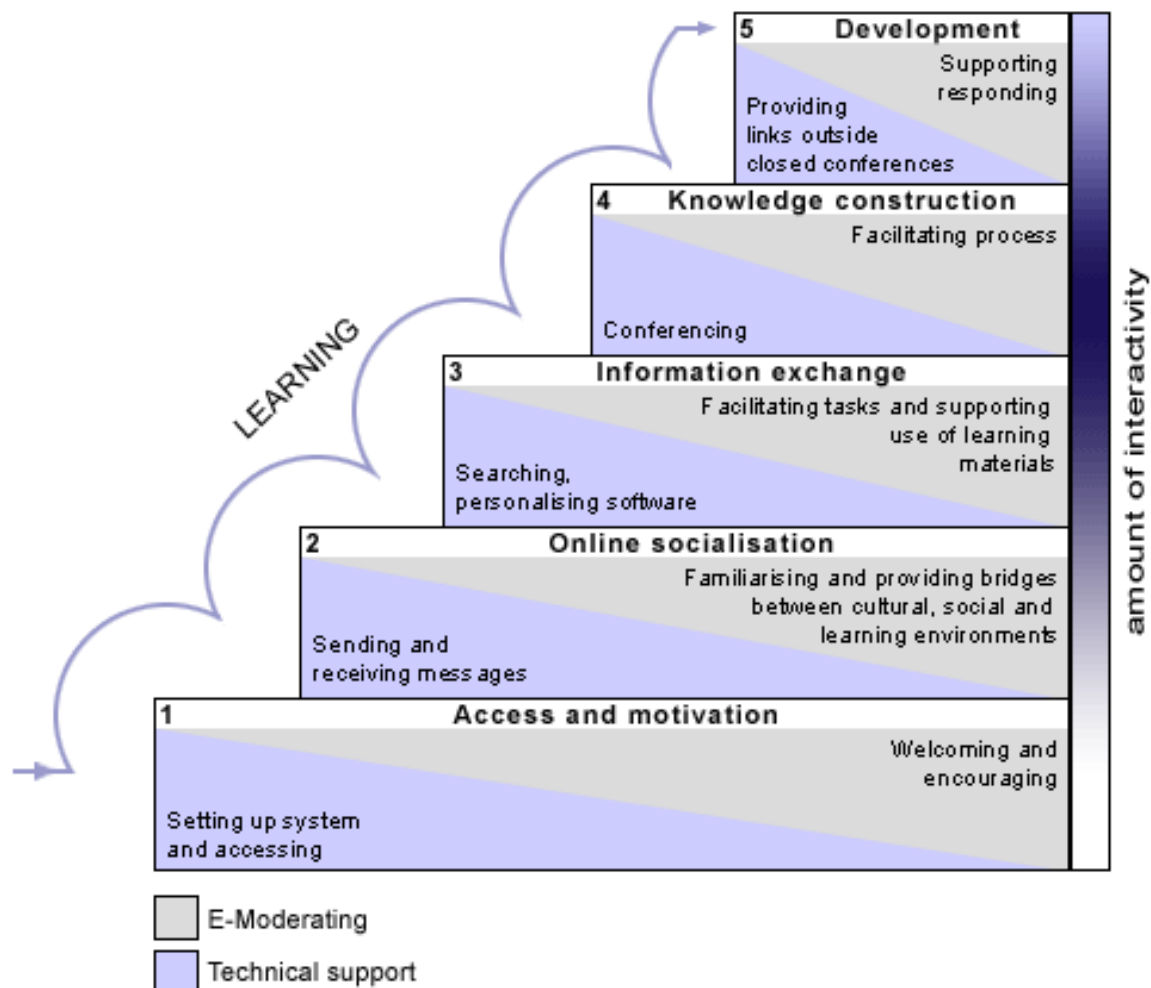


Figure 2 Salmon's five step e-moderation model.

Source: <http://www.atimod.com/e-moderating/5stage.shtml>

Activities based on Salmon's (2002) model would be beneficial to BOCODOL online learners as the activities are online based and therefore not time and location bound, like the logistics sessions currently in place. The e-moderation and podcasting suggested earlier in this section are internet based interventions. Since there is a problem of internet access, I suppose the participants' suggestion that they be assisted with access to mobile internet and sponsorship is reasonable.

5.4 Flexibility of Online Learning

Literature shows that one of the benefits of online learning is flexibility. According to Chen (2003) the flexibility of online learning is defined by unrestricted and open “access to learning experiences in terms of *time, place, pace, learning style, content, assessment and pathways*” (p. 29). Responses from the participants revealed that they acknowledged and valued some of the dimensions of flexibility advocated by Chen (2003), but did not all perceive them to be in place at BOCODOL. *“I like the flexibility; you make money (work) and study at the same time. You can do it from anywhere and you don’t have to spend years away from your family because you are studying”* (Participant 013).

“Online learning is not flexible, you still have to be there for live sessions, and you still have deadlines for tests and assignments to meet” (Participant 03).

Clearly, for some learners the course is flexible enough to allow freedom from the confines of time and location. For others, the flexibility is limited as learners have to contend with fixed deadlines, inflexible lesson schedules and, predetermined exam dates. These are dictated by the mode of delivery and the nature of the courses as they have predetermined content, assessment and pathways (Chen 2003). Despite these, the researcher believes that the use of Web 2.0 technologies can offer greater flexibility than is currently experienced by BOCODOL learners. In Table 11, using information from Chen (2003) and Hart (2009b) the researcher presents different dimensions of flexibility, educational benefits, possible Web 2.0 technologies and the possible learner support applications.

Aspect of flexibility	Educational Benefits	Possible Web 2.0 technologies	Possible support uses
Flexible place, same time(Synchronous), text-based (e.g. Chat)	Sense of social presence	Facebook, Skype, Yahoo chat	Eliminate isolation, Feedback, Collaboration Socialization
Flexible place, same time(Synchronous), (AV-based conferencing)	Same as or less than face-to-face	Skype Elluminate Adobe connect Yahoo Messenger	Technology mediated face-to-face interaction, Voice enhanced feedback, e-Moderation
Flexible place, flexible time (Asynchronous) Without interaction with others	Opportunity for self directed learning	Twitter Bloggers RSS/ Feed reader Podcasts Delicious	Online social bookmarking Content aggregation Voice enhanced feedback
Flexible place, flexible time (Asynchronous)	Engages students in in-depth discussion and reflection	Threaded Chat Forums	Detailed feedback

Table 11 Extending the flexibility of online learning with Web 2.0 technologies

The researcher believes that if it was not for the limited access to the internet, the suggested use of Web 2.0 technologies would go a long way in mitigating some of the challenges experienced by BOCODOL learners. Since the suggested technologies are internet based, they extend the notion of the flexibility of time and location. Learners would not need to be in same room as others to ask questions or engage in debate with others as is presently the case. The suggested technologies resonate well with the main principle of the framework of this study – interactions in online learning. The next part discusses the personal category of patterns that emerged from the study.

5.5 Personal Challenges

Personal challenges in this study referred to impediments that the participants, rather than the institution, were obliged to find solutions to. Among such were, materials printing costs, negotiating leave or off time at work in order to attend live sessions, soliciting the necessary support from the members of the family, such as baby sitting, as well as factors that contributed to the participants' feeling of isolation. Among these challenges, isolation will be discussed next as the researcher believes that, while it is a personal challenge, it is also one where the institution could offer support, particularly as it is a challenge that has prospects of being mitigated by the use of Web 2.0 technologies.

5.5.1 Isolation

A significant percentage of the participants (85%) bemoaned factors that translated to isolation, possibly as a result of low levels of learner-learner, learner-lecturer interactions and the absence of tutors. The isolation was revealed by responses such as;

"It is a lonely experience, and you're alone most of the time" (Participant 02).

"There is no one to push you" (Participant 013).

"We don't know each other, everyone is an island" (Participant 014).

The perceived isolation could possibly be explained by the general low motivation and lack of commitment captured by responses such as;

"More commitment is needed" (Participant 01).

"There is need for discipline and self management" (Participant 03).

"We need to apply ourselves and remain focused" (Participant 08.)

Literature points to some factors that may contribute to online learning being a lonely and isolated experience. The text based mode of collaboration (Reisetter et al., 2007) has been found to be one factor that inadvertently leads to isolation. This view is also reiterated by Palloff and Pratt, (2005) when they point out that:

The online environment can be a lonely place...the benefits of taking an online class...can be a detriment of sorts given that, for the most part, the people with whom one is interacting are represented by words on a screen (p. 1).

The researcher argues that isolation is detrimental to the various interactive dimensions of online learning. Online learning is credited for the interactive and collaborative possibilities that are limited in the traditional form of distance learning. It has been observed that the essence of online learning is teacher-learner and learner-learner interactive opportunities (Katz, 2002). Wang (2008) and Salmon (2002) made explicit arguments for the facilitation of learner-technology interactions. The essence of interactivity in online learning has been reiterated by many researchers in the contemporary debates such Hart (2009a) and Downes (2005), who consider online learning to be much more than a mode of delivery, but a platform of collaborative and interactive learning.

The interactions mentioned above were found to be very limited at the learning center, making online learning a lonely, isolated and uninteresting activity. Although the mode of delivery included live sessions as a strategy to mitigate isolation, the conspicuously low attendance of the scheduled sessions, blamed on perceived inflexible scheduling and learners' work commitments, shows that in fact they did not serve the purpose of increasing interaction. The nature of usage of the internet, i.e. limited to downloading archived materials and emailing assignments also suggests limited learner-learner and learner-teacher interaction.

5.5.2 Mitigating Isolation using Web 2.0 Technologies

Facebook: The researcher believes that Web 2.0 technologies can mitigate the perceived low interaction levels and ultimately the isolation resulting from the lack of a sense of community in online learning at BOCODOL. It would be even more beneficial if Web 2.0 media was mediated and facilitated by teachers or course administrators as part of the institution's support initiative. Course providers should not shy away from making explicit policies

regarding the use of social media as part of learner support. This would ensure that the use of the applications is not limited, haphazard and improvised, but rather well focused and aligned with the aspirations on both the learners and the course providers. In particular the researcher argues for the use of Facebook. While Facebook is not an educational application per se, it has the potential to mitigate some hurdles that impede online education, such as isolation. It is commendable that some participants took the initiative to use applications such as Facebook in their collaboration efforts as shown in the self help strategies in the previous chapter. The popularity of social collaborative media is growing rapidly. Facebook usage statistics are shown in Table 12.

FACEBOOK USAGE AND INTERNET STATISTICS FOR AUGUST 31, 2010						
Geographic World Regions	Population (2010 Est.)	Facebook Users	Facebook Penetration	Facebook Index(*)	Internet Users	Internet Penetration
Asia	3,834,792,852	93,584,580	2.4 %	11.3 %	828,930,856	21.6 %
Africa	1,013,779,050	17,607,440	1.7 %	15.9 %	110,948,420	10.9 %
Europe	813,319,511	162,104,640	19.9 %	34.1 %	475,121,735	58.4 %
Latin America	550,924,250	68,189,920	12.4 %	35.0 %	195,042,230	30.4 %
North America	344,124,450	149,054,040	43.3 %	56.0 %	266,224,500	77.4 %
Middle East	212,336,924	11,698,120	5.5 %	18.5 %	63,240,946	29.8 %
The Caribbean	41,632,722	3,925,060	9.4 %	39.0 %	10,055,240	24.2 %
Oceania / Australia	34,700,201	11,596,660	33.4 %	54.5 %	21,272,470	61.3 %
WORLD TOTAL	6,845,609,960	517,760,460	7.6 %	26.3 %	1,970,837,003	28.8 %

Table 12 Facebook usage statistics

Source: <http://www.internetworldstats.com/stats25.htm>

The 2010 statistics for Facebook users in Botswana show that of the 120 0000 who have access to the internet 86 000 use Facebook. These statistics confirm the popularity of Facebook among those who have access to the internet. Most of the participants concurred that Facebook is a feasible feature for use as part of learner support, but they decried the costs that come with internet access. Mann-Cross (2010) noted the growing popularity of using Facebook in teaching and learning by indicating that:

Studies are showing that more and more teachers are using Facebook in the classroom. Two ways have been identified for the use of Facebook in the classroom. One is to have everyone add you (the teacher) as a friend, then download the “File” module and the “questions” module. All assignments and other items get posted to the “Files” module and you can use the “questions” modules to send out questions to your students. The other method is to do the above, but also create a group for the class. Within the group you can post homework notices and other class notices, as well as an interface for students to discuss class issues (p. 5).

The researcher has observed that the sense of community among online learners at BOCODOL is minimal owing to the virtual absence of learner-learner interactions. In such a case a combination of Salmon's (2002) e-tivities and a social platform such as Facebook could remedy online socialization facilitated by some e-moderators or tutors challenges and possibly eliminate isolation.

5.5.3 Digital Fluency

The researcher had an assumption that a manifestation of the digital divide resulting from the possible lack of computer skills would be the conspicuous as most of the participants were adults. Contrary to the researcher's expectation, the analysis of the data collected showed that only three out of the 17 student participants expressed some mild discomfort with the digital environment. The participants of this study were aged between 19 and well above 36 years of age and all but one were in full time employment. The perceived comfort or discomfort was revealed by the responses to Item 11 which was:

How are the following helpful or not helpful in aiding your successful completion of your course? A. Your current computer skills. B. Internet access and C. Independent studying

The following is some of the responses that were given:

"I can describe myself as very competent" (Participant 01).

"I've got no problems at all. I've done a course called Information Systems for Managers" (Participant 09).

"I'm ok. I've used interactive websites before and this course has an inbuilt tutorial for navigating the portal" (Participant 06).

Item 11 was answered differently by participants who are not comfortable with computers as revealed by the following examples:

"I can use a computer but I still need training to use the software for the course" (Participant 07).

"It's important (computer skills). You have to rely on your own computer skills as internet cafés do not teach you anything" (Participant 08).

"My computer skills are helpful. I can type my assignments but I think I have a natural phobia for computers" (Participant 011).

Perhaps the comfort of the majority can be explained by the fact that the jobs for most of the participants entailed the use of computers. Among the participants were accountants, auditors, teachers, and Information Technology (IT) technicians. The discomfort arose from the anxiety and apprehension about participating in the digital learning environment. The

researcher is of the view that the level of discomfort that some participants expressed confirms the need for supportive interventions similar to *Induction* (Forrester et al., 2005) that is given to learners from the start to the completion of the courses. Online learners need the sort of support that would make them familiar and comfortable with the software for their virtual learning environments. As Salmon (2002) cautions, the online learners' entry computer skills should not be taken for granted. Using computers at home or work does not guarantee comfort with online learning applications.

The findings revealed a number of support interventions that address various challenges experienced by learners at BOCODOL. However, there was no evidence of any strategy in place that was intended to support learners who were experiencing difficulties due to inadequate computer skills. Responses such as "*internet cafés do not teach you anything*" (Participant 08) reflect a need for a computer skills related support which is currently not in place.

The first two steps of Salmon's (2002) e-moderation model, *access and motivation and online socialization* are specifically meant to eliminate the initial discomfort that online learners may experience. The researcher is of the opinion that such activities would go a long way in mitigating the discomfort that results from the lack of or inadequate digital fluency that this study found at BOCODOL. In order to make use of the Web 2.0 tools learners need to have digital fluency. The institution, if moving in the direction of Web 2.0 would need to ensure that its induction programme included support necessary for learners to develop the skills necessary to ensure their comfort in the digital learning environment.

5.6 Conclusion of Chapter Five

An array of impediments exists in online learning much as they did in the traditional mail and radio based distance learning. Whilst the nature of the internet today permits learner-learner and learner-lecturer interactions and collaboration in online learning, at BOCODOL such interactions were found to be minimal. The internet remains a mode of delivery rather than the possible platform on which leaning takes place Downes, (2008). Web based activities (Salmon, 2002) such as blogging (Downes, 2009) podcasting (Flanagan & Calandra, 2005) can go a long way in helping online learners who may be disenfranchised by the text based mode of online collaboration (Reisetter et al., 2007). Similarly, social media such as Facebook and Skype can mitigate the isolation expressed by some of the participants. The

discussion in this chapter argued for the use of Web 2.0 technologies in providing timely and rich feedback that promotes future engagement with content. In the next chapter, the conclusion and recommendations of this study will be presented.

6 CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

The conclusions that the researcher has drawn from the results of this study are presented in this chapter. First, a recap of the motivation for the study and research question is presented. A summary of the main findings follows. The chapter concludes with some recommendations that the researcher believes might be helpful to BOCODOL, the research case for this study.

6.1.2 Motivation for the Study

This study was motivated by the conflicting perceptions of the impact of the ICTs, especially the internet, on distance education. One perspective in the literature is that of the benefits such as, among others, reaching learners who were disadvantaged by distance, freedom from the confines of time and location and flexibility. The other perspective is the literature that dismisses the envisaged benefits in view of the eminent impediments such as the digital divide in its various manifestations and other challenges that have been known to beset distance learning. In view of the aforementioned perspectives, the researcher's interest was to establish the nature of support needed to mitigate the impediments experienced by those who are using the online mode of distance learning. BOCODOL was chosen as the ideal research site as the college is piloting LMS based online learning, as well as being a learning center for the Pan-African e-Network project that offers courses through the mixed mode of video tele-conferencing and internet portals. This study focused on the later as it was fully operational.

6.1.3 The Research Question

This study was guided by the research question: *What is the nature and perceived value of the support and intervention strategies that BOCODOL and its online learners employ to ease the impact of the impediments that the learners encounter?* The study sought to address the question through the following critical questions:

- What is the nature of the challenges facing online learners at BOCODOL?
- What is the nature of support that the college has in place for online learners?
- What do online learners think of the available support strategies and what do they believe would improve these strategies?
- What strategies do online learners themselves employ to combat the challenges that they perceive to impact on them in their studies.

6. 2 Conclusions

This study has confirmed the existence at BOCODOL of impediments to online learning shown in the literature review of this study. Among the impediments are the different manifestations of the digital divide, especially the physical access to the internet resulting from low internet penetration and the prohibitive costs of the internet and related hardware. Furthermore challenges that are beyond the institution were seen to impact negatively on the perceived benefits of online learning. The heterogeneous demographic characteristics of the students, such as their work and family commitments and their diverse socio-economic conditions were also found to present challenges to the learners in their online activities. Institutional challenges such as delayed and inadequate feedback, a sense of isolation resulting from lack of learner-learner and minimal learner-lecturer interactions as well as lack of tutorials have also been confirmed.

Despite the challenges noted at BOCODOL, this study has confirmed that distance or online education remains a preferred alternative for learners who, despite their work, family and social commitments, want to peruse their academic aspirations to the highest possible levels. Item 12 of the interview schedule; *have you ever contemplated withdrawing from your course or mode of study?* was answered in the affirmative by only one participant citing personal reasons that the participant was not comfortable to disclose. The rest of the participants proclaimed their studies as a life time opportunity that could not be wasted, in spite of the challenges.

This study has also revealed that a range of services are in place at BOCODOL to support online learners. The services cover administrative, academic, technical and counseling support. However, some participants were not aware of the support interventions that the college offered, and several, such as the logistics sessions, were underutilized. The Guidance and Counseling Policy for BOCODOL, while comprehensive, does not make explicit learner support strategies for online learners. For instance, the study did not find evidence in this document to suggest any activities that facilitate online interaction, collaboration and e-moderation as Salmon (2002) suggests would be appropriate. This may imply that challenges for online learners are dealt with contingently as and when they arise – but in fact the research did not uncover evidence of any contingency strategies. The researcher concludes that the learners' needs and the college's support interventions do not entirely tally, hence

some participants had their own self help support strategies which were also not enough to mitigate that challenges they experienced.

Contrary to the expectation of the researcher, most of the participants did not have problems related to the computer skills required for participation in the course. Perhaps this is helped by the fact that most of them are in fulltime employment where computers are used. However, some expressed the need for training to familiarize themselves with the portal interfaces.

While BOCODOL uses some Web 1.0 Technologies such as emails and Short Messages Service (SMS) to expedite communication with the learners, the study did not reveal any evidence that suggests the use of Web 2.0 technologies to enhance interaction, collaboration and e-moderation. In view of the aforementioned conclusions, the recommendations are presented next.

6.3 Recommendations

Given the challenges regarding internet access and prohibitive costs of related hardware, the researcher feels that the learners' suggestions to be granted access to some internet enabled laboratory at the learning center are reasonable. Perhaps BOCODOL should consider this provision in future for the learning center and, resources permitting, for other study centers country wide.

The researcher suggests that this study could provide useful insights for BOCODOL as a starting point in considering and exploring the possibilities of using the Web 2.0 tools and technologies as part of learner support for online learners. The research found that there was little support for learner-learner, learner-tutor and learner-college interactions, and the features of Web 2.0 technologies have the potential to make these possible through e-moderation.

The researcher recommends that BOCODOL should consider drawing up a learner support policy that is specifically for online learners. The policy could make explicit provisions for among others, e-moderation (online tutorials), social collaboration among learners, virtual office hours, training on the interface of the LMS or portals, feedback, alternative ways for submitting assignments and flexible assessment options. These strategies have obvious implications for the need for advocacy and training and support.

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APPENDECES

APPENDIX A: RESEARCH PERMISSION LETTER FROM BOCODOL

Botswana College of Distance and Open Learning



BOCODOL
Private Bag BO 187
Bontleng
Gaborone
BOTSWANA
Bontleng

Tel: +267 3181470
Fax: +267 3181473

Reference No.: BOC 4/20 I(31)

Date: 19/05/2010

Mr. Edward Selelo
The University of the Witwatersrand
International Residence Hall, FA11
Private Bag 003
Johannesburg, 2050

Dear Mr Selelo

Request for Permission to Conduct Study: Distance and Online Learning in Botswana; challenges and mitigation strategies

Your letter dated 6th May 2010 and the originating dated 13 March 2010 refers.

Your request has been considered positively. By this response, the College grants you permission to interact with the coordinating staff and identified learners enrolled in the chosen modes. The College has learners studying by both methods; distance and online, the latter being a newly introduced mode in partnership via a Botswana-India Government tele-education project which started late last year.

The College trusts you will use the information released to you in a responsible manner and that all identities of the people you will interact with will be protected.

The College looks forward to your final report and would be interested to receive a copy from which it could learn in order to take its services forward.

Yours Sincerely,

F. Arney (Ms)
For/Executive Director

Commonwealth of Learning Award of Excellence Winner - 2006

Regional Offices: -

Regional Manager
P/Bag BO 349
Bontleng
Tel: 3930017
Fax: 3930018

BOCODOL
P/Bag 005
Palapye
Tel: 4924024
Fax: 4900343

BOCODOL
P/Bag F32
Francistown
Tel: 2478383
Fax: 2414586

BOCODOL
P/Bag 0394
Maun
Tel: 6865621
Fax: 6800581

Regional Manager
P/Bag 006
Kang
Tel: 6517248
Fax: 651724

b r i d g i n g t h e e d u c a t i o n g a p

APPENDIX B: ETHICS CLEARANCE LETTER

Wits School of Education

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STUDENT NUMBER: 511056

Protocol number: 2010ECE128C

16 August 2010

Mr. Edward Selelo
WSOE

Edmaan73@yahoo.com

Dear Mr. Selelo

Application for Ethics Clearance: Master of Education

I have a pleasure in advising you that the Ethics Committee in Education of the Faculty of Humanities, acting on behalf of the Senate has agreed to approve your application for ethics clearance submitted for your proposal entitled:

Distance and online education in Botswana: Challenges and mitigation strategies

The Protocol Number above should be submitted to the Graduate Studies in Education Committee upon submission of your final research report.

Yours sincerely

A handwritten signature in black ink, appearing to read "M Matsie Mabeta".

Matsie Mabeta
Wits School of Education

Cc Supervisor: Dr. S Cohen (via email)

APPENDIX C: INTERVIEW QUESTIONS FOR STAFF

Participant	Occupation/ Course taught

1. What is it like to be a distance / on-line education practitioner? (lecturer, administrator etc).
2. Based on your experience, what are the significant differences between distance / online learning and conventional classroom learning?
3. Generally, what challenges impact upon on-line learning at BOCODOL?
4. In terms of enrolment, completion and pass rates, what is BOCODOL's success rate for online courses to date?
5. What would you say are factors that either impede or help students to succeed in online learning environments?
6. What strategies does BOCODOL employ to mitigate challenges that may be prevalent in online learning environments in terms of the following dimensions?
 - Administrative support
 - Instructional support
 - Technical support
 - Counseling support
 - Tutorial support
7. What else do you think can be done?

APPENDIX D: INTERVIEW QUESTIONS FOR STUDENTS

Participant	Age (√)			Occupation	Course and year of study
	19-25	26-35	36 >		

1. What course are you studying?
2. What is it like to do this course by distance or on-line study mode?
3. What made you to opt for this course using this mode of study?
4. What problems do you often encounter as a distance and or on-line learner?
5. What do you really enjoy about studying on-line?
6. What factors do you think will determine your success or failure in distance / on-line learning environment?
7. What do you experience as a distance / on-line learner that people may not be aware of or take for granted?
8. What does BOCODOL do to assist learners who study on-line?
9. Do the College's support strategies satisfactorily meet your support needs?
10. What more do you think could be done to help you complete your course successfully?
11. How do you overcome the challenges that could make you fail as distance / on-line learner?
12. How are the following helpful or not helpful in aiding your successful completion of your course? A. Your current computer skills. B. Internet access. C. Independent studying.
13. Have you ever considered withdrawing from your course or mode of study? If so what factors made you consider that? What made you change your mind?

APPENDIX E: DEMOGRAPHIC INFORMATION AND KEY RESPONSES

Participant	Age	Occupation	Course and Year of Study
01	26 - 35	IT Officer	Bachelor of Science (IT) Yr 1
Challenges: Isolation, work commitments, family commitments, support from work, no internet at home, internet costs, slow internet, feedback, inflexible schedule, no tutorials, printing costs, time differences and self management skills.			
Self Help Strategies: Use internet at work, Internet Cafés, pay for printing costs			
Perceived Helpful Intervention: Access to Internet at BOCODOL, Allowance, Counseling, Tutors, Timely Feedback, and Off / leave to attend Lessons.			

Participant	Age	Occupation	Course and Year of Study
02	>36	Programme Development Coordinator	MBA International Business Yr 2
Challenges: Isolation, work commitments, family, no support from work, portal, no internet at home, internet costs, feedback, no tutors, printing costs, power cuts, self management skills and slow internet.			
Self Help Strategies: Use internet at work, Internet Cafés, pay for printing costs			
Perceived Helpful Intervention: Access to Internet at BOCODOL, Laptops, Mobile internet, Flexible scheduling, Allowance, Counseling, Tutors, Timely Feedback and Off / leave to attend Lessons.			

Participant	Age	Occupation	Course and Year of Study
03	>36	Programme Development Coordinator	MBA International Business Yr 2
Challenges: Isolation, work commitments, family, no support from work, portal, no internet at home, internet costs, feedback, no tutors, printing costs, power cuts, self management skills and slow internet.			
Self Help Strategies: Use internet at work, Internet Cafés, pay for printing costs, foregoing social engagements			
Perceived Helpful Intervention: Access to Internet at BOCODOL, Laptops, Mobile internet, Flexible scheduling, Allowance, Counseling, Tutors, Timely Feedback, Periodic meetings, Off / leave to attend Lessons, Networking			

Participant	Age	Occupation	Course and Year of Study
04	>36	Accountant	Master of Finance and Control
Challenges: Isolation, work commitments, family, no support from work, no internet at home, internet costs, no tutors, printing costs, power cuts, and slow internet.			
Self Help Strategies: Use internet at work, Internet Cafés, pay for printing costs			
Perceived Helpful Intervention: Access to Internet at BOCODOL, Flexible scheduling, Tutors, Timely Feedback, Periodic meetings and Networking			

Participant	Age	Occupation	Course and Year of Study
05	>36	Accountant	Bachelor of Finance
Challenges: Isolation, work commitments, family, no internet at home, internet costs, feedback, no tutors, printing costs, power cuts, self management skills.			
Self Help Strategies: Use internet at work, foregoing social engagements, Self Discipline			
Perceived Helpful Intervention: Access to Internet at BOCODOL, Counseling and Tutors			

Participant	Age	Occupation	Course and Year of Study
06	26 - 35	Welfare Officer	Diploma in Aids & Family Education
Challenges: work commitments, family, no support from work, portal, no internet at home, internet costs, feedback, no tutors, printing costs, power cuts, self management skills and slow internet.			
Self Help Strategies: Internet Cafés, pay for printing costs, make babysitting arrangements, swapping shifts with colleagues			
Perceived Helpful Intervention: Access to Internet at BOCODOL, Laptops, Mobile internet, Allowance, Periodic meetings and Off / leave to attend Lessons.			

Participant	Age	Occupation	Course and Year of Study
07	19 - 25	Unemployed	Diploma in Aids & Family Education
Challenges: Isolation, portal problems, no internet at home, internet costs, feedback, no tutors, printing costs, power cuts, self management skills and slow internet and computer skills.			
Self Help Strategies: Internet Cafés, pay for printing costs, Commitment, learn more computer skills			
Perceived Helpful Intervention: Access to Internet at BOCODOL, Counseling, Tutors, Timely Feedback,			

Participant	Age	Occupation	Course and Year of Study
08	>36	High School Teacher	Master of Business Administration
Challenges: Isolation, work commitments, family, no support from work, internet costs, feedback, no tutors, printing costs, inflexible scheduling, power cuts and slow internet.			
Self Help Strategies: Internet Cafés, subscription for mobile internet, collaborating on Facebook, commitment, Discipline			
Perceived Helpful Intervention: Access to Internet at BOCODOL, Flexible scheduling, Timely Feedback, Periodic meetings and Off / leave to attend Lessons.			

Participant	Age	Occupation	Course and Year of Study
09	> 36	Civil Servant (Management)	Master of Business Administration
Challenges: Isolation, work commitments, no internet at home, internet costs, feedback, printing costs, inflexible scheduling power cuts and self management skills.			
Self Help Strategies: Internet Cafés, collaboration on Facebook, using Skype, balance between family, work and studies			
Perceived Helpful Intervention: Access to Internet at BOCODOL, Flexible scheduling, Tutors, Timely Feedback, Periodic meetings, and Networking			

Participant	Age	Occupation	Course and Year of Study
010	>36	Auditor	Master of Business Administration
Challenges: Isolation, work commitments, no support from work, portal, no internet at home, internet costs, feedback, no tutors, printing costs, power cuts, self management skills and slow internet.			
Self Help Strategies: Internet Cafés, commitment			
Perceived Helpful Intervention: Access to Internet at BOCODOL, Timely Feedback			

Participant	Age	Occupation	Course and Year of Study
011	26 - 35	Welfare Officer	Diploma in Aids & Family Education
Challenges: Work commitments, portal, no internet at home, internet costs, printing costs, feedback power cuts, inflexible scheduling and low computer skills.			
Self Help Strategies: Internet Cafés, practice more computer skills			
Perceived Helpful Intervention: Access to Internet at BOCODOL, Laptops, Mobile internet, Flexible scheduling, Timely Feedback and Networking			

Participant	Age	Occupation	Course and Year of Study
012	26 - 35	Research Assistant	Master of Business Administration
Challenges: work commitments, no support from work, portal, no internet at home, internet costs, feedback, power cuts, self management skills, inflexible scheduling and slow internet.			
Self Help Strategies: Use internet at work			
Perceived Helpful Intervention: Access to Internet at BOCODOL, Laptops, Mobile internet, Periodic meetings, and Off / leave to attend Lessons.			

Participant	Age	Occupation	Course and Year of Study
013	26 -35	I T Officer	Bachelor of Science (IT) Yr 1
Challenges: Isolation, work commitments, no support from work, portal, no internet at home, internet costs, no tutors, printing costs, power cuts, self management skills, inflexible scheduling and slow internet.			
Self Help Strategies: Use internet at work			
Perceived Helpful Intervention: Access to Internet at BOCODOL, Flexible scheduling, Timely Feedback and Off / Leave to attend Lessons, Networking			

Participant	Age	Occupation	Course and Year of Study
014	19 -25	I T Officer	Bachelor of Science (IT) Yr 1
Challenges: Isolation, work commitments, no support from work, portal, no internet at home, internet costs, no tutors, power cuts, inflexible scheduling and slow internet.			
Self Help Strategies: Use internet at work			
Perceived Helpful Intervention: Access to Internet at BOCODOL, Laptops, Flexible scheduling, Tutors, Off / Leave to attend Lessons			

Participant	Age	Occupation	Course and Year of Study
015	>36	I T Officer	Bachelor of Science (IT) Yr 1
Challenges: Isolation, work commitments, no support from work, no internet at home, internet costs, no tutors, printing costs, power cuts, inflexible scheduling, self management skills and slow internet.			
Self Help Strategies: Use internet at work			
Perceived Helpful Intervention: Access to Internet at BOCODOL, Flexible scheduling, Counseling, Tutors, and Off / leave to attend Lessons.			

Participant	Age	Occupation	Course and Year of Study
016	26 - 35	I T Officer	Bachelor of Science (IT) Yr 1
Challenges: Isolation, work commitments, no support from work, no internet at home, internet costs, no tutors, power cuts, inflexible scheduling and self management skills.			
Self Help Strategies: Use internet at work			
Perceived Helpful Intervention: Access to Internet at BOCODOL, Flexible scheduling, Counseling, Tutors and Off / leave to attend Lessons.			

Participant	Age	Occupation	Course and Year of Study
017	>36	I T Officer	Bachelor of Science (IT) Yr 1
Challenges: Isolation, work commitments, family, no support from work, no internet at home, internet costs, power cuts, self management skills, inflexible scheduling and slow internet.			
Self Help Strategies: Use internet at work			
Perceived Helpful Intervention: Access to Internet at BOCODOL, Laptops, Flexible scheduling, Counseling, Tutors, Timely Feedback and Off / leave to attend Lessons.			

APPENDIX F: BPC LOAD SHEDDING SCHEDULE



BOTSWANA POWER CORPORATION

AVOID LOAD SHEDDING

Load Shedding schedule for Botswana and
general tips on how to save power in your own home.

BPC has put together this information leaflet to help our customers better understand the load shedding schedule. We urge all customers to avoid load shedding by practicing all measures available by "Mr. Watt".

However, note that load shedding;

1. Is a final-resort measure taken by the Corporation during occasions when the demand for electricity exceeds the available supply. It is required to protect the integrity of the power system under the supply conditions prevailing at the time.
2. Should load-shedding become necessary, the Corporation will endeavour to adhere to the published load-shedding schedule in accordance with the following principles:
 - 2.1 Geographic areas designated on a particular day will be the first areas in their stage sequence to be load-shed;
 - 2.2 If the required load to be shed exceeds 50MW at any one time, additional load shedding outside the programme (additional areas) will be carried out to balance supply and demand.
 - 2.3 If, on a particular day of the week, not all load-shedding becomes necessary on a subsequent occasion (same day of the week), then the subsequent load-shedding shall begin with those customers who were not affected on the previous occasion even though they may not be in the first stage(s).
 - 2.4 When customers have been switched off in a stage, and no further load curtailment is required, then load curtailment shall be rotated within customers on that day, in an endeavour to ensure that no customers are off for more than four hours.
3. The load-shedding programme is subject to review, depending on the prevailing supply and demand situation. Clarifications regarding the schedule or related activities may be obtained by calling the telephone numbers at various Customer Service Centres as published in the Corporation's Customer Information Guides and Faults Reporting pamphlets. The brochures may be obtained from the nearest Customer Service Centre.
5. Updated load-shedding planning schedules will be available on the BPC website at www.bpc.bw.

Wednesday

Stage 1	Stage 2	Stage 3
Tlokweng South, e.g.(Brink Farm), Oasis Motel, Senn Foods, Tlokweng Central including Kgotta Ext 16, GPH, Broadhurst Industrial e.g Kgalagadi Brewery Mogoditshane village Central Northern Ledumadumane Block 6, Partial	Phakalane Ruretse Matebeleng Glen Valley Gaborone North Gaborone West Industrial (south of Kudumatse Rd) Phase 4 along New Lobatse Rd Commerce Park and Kgale	Molapo Crossing Westgate Mall Engen Filling station Riverwalk Village Metereology Prisons BDF village Carip Primary

Thursday

Stage 1	Stage 2	Stage 3
Mokolodi 1 Old Naledi St Joseph College BTC Satellite E/station Kanye Village Broadhurst Industrial (along Kubu Rd, Lejala Rd, Legolo Rd Nakedi Rd e.g Taurus Botswana, Electrical Distributors Etc.)	Lobatse Township Jwaneng Township Commerce Park Kgale View	Broadhurst Industrial BBS Mall Tuli Courts Part of Tsholofelo Tawana Buyani Ledumang residential Ledumang Secondary School Tapologo Estate Block 7 Game City Mall

Friday

Stage 1	Stage 2	Stage 3
Fairgrounds Enclave (i.e BIFM, Boipuso Hall & Ditshupo hall BDVC, BAC, BoTeCh) Block 3 Residential Block 8 residential Block 3 Industrial Part of Tsolamosese Mogoditshane South and Nkoyaphiri	Tsolamosese area Millenium Park Kgale View Spar Mall Complex Kgale Quarry	Segwana GBC Bardays warehouse Metsef Oriental plaza and adjacent industries Tlokweng North (e.g Lenganeng, Masetine and toWards the Border) Molepolole Village

Saturday

Stage 1	Stage 2	Stage 3
University of Botswana Lobatse Goodhope Molapowabojang	Gaborone Central (e.g Ext 2, 4, 11.)	Moshopa Ranaka Ramonnedi Mmathethe Phakalane Residential Industrial Ruretse

Sunday

Stage 1	Stage 2	Stage 3

Internet penetration low

BY SUN REPORTER

Botswana Telecommunications Authority has decried high infrastructure costs, low incomes, sparse population and lower computer literacy as major hindrances to Internet usage in Botswana. BTA is the regulator of telecommunications service providers in Botswana.

The regulator also identified a number of challenges that hinder the penetration of Internet services in Botswana citing high costs of computers and prohibitive Internet costs and lack of local content.

The regulator said in its annual report that the cost of telecommunications services, particularly Internet services is currently low in Botswana. To solve this problem, the regulator recommended for the establishment of a Universal Services Fund (USF) to mitigate high capital costs required to deploy network in places deemed unprofitable such as in rural and remote areas. Currently governments' Nteletsa programmes have been able to avail Internet services in remote areas as govern-

ment rolls out services to all Botswana at affordable prices. BTA statement said Nteletsa II is another government initiative aimed at providing rural communities with access to telecommunications services including voice, data and Internet services.

This has been rolled out in a number of villages through out the country, according to a BTA statement, making Botswana one of the most connected African country. On other telecommunications issues the regulator said the mobile telephony services provided by Orange Botswana, Mascom and Be Mobile continue to grow over the last ten years.

"In absolute terms, the number of subscribers has grown from 222 190 to 2 363 411 over the past 10 years," said a BTA statement. The regulator said the fixed telephony subscription remains relatively stagnant, growing by 0.1% over the past 10 years.

BTA placed Mascom ahead of the pack of mobile service providers, controlling 57% of the market share. Orange Botswana followed with 37%, while the newest comer in the mobile industry, Be Mobile has 6% of market.