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**Exploring the introduction of e-learning as an open and distance learning delivery mode in  
Botswana**

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**Abstract**

This paper presents findings from a survey whose primary objective of this study was to determine the feasibility of introducing e-learning as an alternative mode of delivery or as a supplementary intervention at Botswana College of Distance and open Learning (BOCODOL). The survey used questionnaire instrument on learners taking Certificate and Diploma courses. The study revealed that a very satisfactory number of learners have positively indicated that they had computer skills and that some had access to computers at work. However the major shortcoming is that more than half of them had no access to internet connectivity. Internet services are a core vehicle for e-learning and as such this can be an impediment in the implementation of this project.

The paper concludes by suggesting a cautious decision with regard to the implementation of the e-learning initiative as access to internet and a matter relating to the availability of enabling infrastructure proves very vital for the project of this nature.

**Background**

E-learning can be broadly perceived as using technology to deliver learning and teaching programs. It is a mechanism used to achieve and ease learning by altering and improving the delivery channel. Because of the benefits accruing from the use of this approach, such as cost savings, flexibility and increased performance, there has been unparalleled rise in the recognition of the potential of e-learning in today's knowledge economy. Botswana as like other countries has realized the importance of e-learning as an engine of change not only in education and training but also in the business sector as well as in the development of communities around the world.

A report on Science and Technology courses via e-learning: an African scenario with lessons from South East Asia, notes that accelerated technological development enshrined in the constitutions of developing countries and their national development plans are all too focused on building greater technological base and greater science and technology research capacity. The National Development Plans--NDP-8 and NDP-9 in Botswana, together with Vision 2016 titled Towards Prosperity for All--are guiding the nation for greater reliance on industrialization rather than resting on the glory of diamonds for which Botswana is famous.

(<http://www.thefreelibrary.com/Science+and+Technology+courses+via+e-learning:+an+African+scenario...-a092545045>)

The government of Botswana in line with its Vision 2016, developed a National ICT Policy which envisioned to position Botswana for sustainable growth in the digital age by serving as a key catalyst in achieving social, economic, political and cultural transformation within the country (Botswana National Information and Communications Policy V 2005, 8)

A formal assessment on the current state of e-learning in Botswana preceded the introduction of the policy as it enabled the authorities to be in a position to determine the level of effort required to introduce this very important development. The results of the benchmarking and e-readiness assessments indicate that Botswana has a good infrastructure and supporting legislation in place, which provides the country with a solid foundation for accelerating an integrated National ICT agenda. (Botswana National Information and Communications Policy V 2005, 10)

In November 2007, the Tertiary Education Council facilitated a workshop the resultant of which was an intergraded tertiary education plan for the period 2009-2015. This white paper adopted a holistic view of how the tertiary education sector will deliver benefits by amongst others “the establishment of a sector wide tertiary education e-learning system that can be accessed by all the tertiary education institutions”. (Tertiary Education Council, formulating the NDP10 plan consultation paper, January 2008, 13)

Botswana College of Distance and Open learning (BOCODOL) has, ever since its inception had technology as one of the issues that were top on its agenda. For instance in the BOCODOL Strategic Business Plan 2000-2003, Planning for Progress and Excellence in Distance Education, the Multi-Media and ICT Department was mandated to support the introduction and strengthening of the ICT development through the review and development of the ICT strategy. In the strategic plan of 2003-2006, the College adopted the efficient and effective application of technology as one of the key result areas. The idea behind this was to harness technology for efficient and effective development and delivery of quality products and services.

As part of its strategic goals, BOCODOL is currently working towards developing ODL and ICT expertise, in order to progressively increase College bandwidth to facilitate delivery of on-line programmes and services. This is done to ensure that the College is in a position to respond more effectively to the needs of its learners in these matters.

Botswana College of Distance and Open Learning embraces the e-learning initiative not for its strategic growth in increasing access but also to position itself in a global market by reaching out far away learners. The effect of this would be to expand the market base and also inadvertently improve on quality of the service due to the external scrutiny the product will be subjected to internationally.

### **Purpose of the study**

The primary purpose of this study was to determine the feasibility of introducing e-learning as an alternative and or supplementary mode of distance learning to BOCODOL learners. John Chambers (as cited in Rosenberg, 2001, p. xv) notes that “the biggest growth in the Internet, and the area that will prove to be one of the biggest agents of change, will be in e-learning.”(<http://www.elearning.co.bw/>). The college views technology as a driver to increasing access both locally and internationally, e-learning becomes one of the means through which to drive this strategic imperative.

### **Objectives**

In particular the objectives of this study are identified as follows:

- a. To assess the readiness of learners to do their course programmes on-line.
- b. To find out if learners would be interested in doing courses on-line.
- c. To determine if factors permit for learners to do learning on-line.

The core questions guiding these objectives are:

1. Do learners have computer skills?
2. Do learners have access to computers?
3. Do learners have access to internet?
4. Are learners interested in doing their courses on-line?
5. Is there a reliable source of electric power in their areas?

## **Review of Literature**

### **Definition**

E-learning is becoming increasingly widespread due to the need to widen access, its role in pedagogic innovation, enhancement of distance learning, organizational change and also revenue generation. According to Ravjee(2007), the notion of e-learning can be commonly understood as learning facilitated on-line through network facilities. E-learning is a widespread and dynamic learning environment that allows instructors, learners, and course materials to be placed at different locations so all parties can interact with at the same or various time frames, using well-designed, Web-based technology tools to facilitate the learning process.

### **Quality assurance in –learning**

Many institutions of higher education, educational organizations, the business community, and learners are embracing e-learning for a variety of reasons and needs. According to Almala (2007) these parties refer to key factors such as flexibility, using mixed interactive multimedia, Internet research, archiving, electronic networks, telecommunications, and cost to support the idea that e-learning can serve as a viable and qualitative learning alternative.

Almala (2007) further argues that due to rapid changes in technological development and evolving e-learning instructional strategies, the related issues of accreditation, quality standards, policy issues, educational equity, assessment and evaluation, designing courses and programs, integrating curriculum and technology, student needs, and learning styles need to be re-examine to render and deliver e-learning courses of the highest quality.

### **Motivation to learn on-line**

The success of e-learning depends on a multitude of factors. If effective e-learning is to occur, a combination of active participation, social interaction, and collaboration needs to transpire. According to Sullivan and Butler (2007) distance learning students must feel connected. In the factor analysis study they conducted on student barriers to online instruction, the single most important barrier to students learning online is lack of social interaction. The research indicates that improving online interactivity is critical to ensuring that students stay connected, enjoy the online experience, complete and continue enrolling in online courses. This is critical as it creates a feeling of belonging as they are able to identify with a real class participation experience.

In a study conducted by Uzunboylu, H(2007) which sought to determine attitudes toward online education of English language teachers employed in state secondary schools in North Cyprus following an inservice program on distance education, significant differences in attitude toward online education were found based upon teaching experience, school location, and use of e-mail. The study demonstrated that the use of computer and internet technologies and online education requires more positive attitudes than found among the sample of teachers in this study.

These observations demonstrate that acceptance and resistance to e-learning, requires that time, meaningful recognition for participation, and personal and technical support need to be provided for the successful implementation of e-learning initiatives.

### **E-learning as an advantage**

Recent advances in information technology literacy and the abundance of personal computers has placed e-learning in increased demand. In the past distance education was traditionally undertaken as a geographical necessity, now some students who are now able to access on-site internal education are now choosing distance education to better meet their androgogical needs

Although research consistently demonstrates that students learn content in online classes as well as their campus based counterparts and are equally satisfied with the quality of their learning, more information is needed that describes how the learning experiences themselves may vary. A study was conducted by Reissetter, LaPointe and Korcuska (2007) in which a traditional group of students was compared with an online group taking the same graduate class in research methods using the same materials and with the same instructor. Online learning was revealed as a distinctly different experience than face-to-face learning, offering insight into better understanding the nature of the experience of online learning and suggesting that online course designers focus their attention on particular elements that support the unique experiences of student who select this delivery mode.

Advantages of e-learning include increased student autonomy, facilitation of a realistic balance between learning and personal and professional commitments, and elimination of potential student concerns such as embarrassment at making public mistakes and working at a slow pace (Cook et al., 2004; Johnston, 1997). According to Maor and Volet(2007), three major educational issues for the development of professional online learning are identified: the importance of recognising professional study as an integral part of work; the significance of congruence between online study features and professional learners' characteristics; and, the need for course developers to further enhance their technological and pedagogical capacity in the area of professional online learning.

### **E-learning in Botswana, Africa and elsewhere**

According to the report from the, from the 3<sup>rd</sup> International Conference on ICT for Development(2008), changing universities with ICT, an e-learning case study from Botswana, Information technology and e-learning have come a long way at the University of Botswana. However, similar to many other universities in the developing world, the implementation of e-Learning of at the University of Botswana was not all smooth sailing. The major challenges are in the area of limited resources particularly availability of computers. ( <http://www.elearning-africa.com/newsportal/english/news13.php>)

Despite this, there are some African countries that are forging ahead with the introduction of an e-learning culture in their universities, based on national ICT strategies and education policies. A case in point is the establishment of an e-Learning Centre (eLC) in Namibia, which is a multi-stakeholder centre to host all e-activities of all educational institutions in the country on one common Learning Management System under the auspices of Namibian Open Learning Network Trust (NOLNet).( [http://www.uneca.org/disd/events/2006/e-learn/news/news\\_2006052601.html](http://www.uneca.org/disd/events/2006/e-learn/news/news_2006052601.html))

In a paper, titled A Workable E-Learning Strategy for Distance Education in South Africa, Serfontein(2004) argues that E-learning is not yet happening on a large scale in distance education in South Africa because the attempts at e-learning are sporadic and the result of individual rather than institutional efforts. This is partially caused by systemic and institutional constraints, as well as limitations faced by individuals and departments in distance education institutions. In the absence of an institutional strategy to implement e-learning, it is up to individuals and academic departments to put it into action. (<http://portal.acm.org/citation.cfm?id=1018423.1020182>)

Sweden on the other hand as an example of the developed world, has the best ICT infrastructure in the world. In a report cited by Odero, according to a survey by the International Data Corporation (IDC) in February 2000, Sweden was declared the world leader in ICT infrastructure. This is largely attributed to the government concerted effort to transform the country into an information society for all.

The cited literature in this paper points to the fact that e-learning mode, despite some handicaps, is increasingly becoming a requirement mainly by business organizations and busy individuals seeking flexible and quality training and educational opportunities to enhance skills or earn

academic or professional certification. The growth of e-learning calls for organizations and institutions to colleges and universities to provide e-learning that best suits and meets the needs of the targeted clientele.

## **Research Design and Methodology**

### **Methodology**

The study employed both qualitative and quantitative approaches in order to take advantage of the richness derived from such a combination. This approach is called triangulation, and it allows a researcher to make observations from different view points. According to Newman (2003), since there is a partial overlap, a study using both methods is both fuller and comprehensive. But it must be noted that due to the design of the study there was an inclination more towards the qualitative approach. Unlike quantitative research, qualitative research relies on reasons behind various aspects of behavior.

### **Data collection Instruments**

This study used questionnaire as a method of data collection. Questionnaires are most often used if direct (person-to-person) contact with respondents is not possible or necessary. It is probably the single most widely-used data source in educational research. According to Whitney, D.R. (1972) some experts have estimated that as many as half the research studies conducted use a questionnaire as a part of the data collection process.

The advantages of this approach include richness of response, ability to clear up misconceptions, opportunity to follow up responses, and, by implication, better data in many situations. Additionally, respondents will usually be more conscientious if the interviewer is present and tend to provide responses that are not very genuine.

### **Sample and sampling**

The data was mainly collected from a group of learners who re enrolled in Small Scale Business Management (SSBM), Diploma in Business Management and Human Resource Management and English for Professional Courses (EPP). The questionnaires were randomly given to the learners through the regional officers and later collected for analysis.

### **Location**

The survey covered all the five BOCODOL regional offices, namely; Gaborone, Francistown, Kang, Maun and Palapye regions.

### **Data Analysis**

The data was entered into the computer and analyzed through EPI info software. This allows for easy interpretation and statistical tabulation.

### **Limitation of Study**

Although the study was as extensive as possible by covering all the diploma and certificate learners in their respective regions, unfortunately, the level of response from some learners did not yield the expected result, as some learners especially from SSBM course had just enrolled and were reluctant to fill in the questionnaires.

### Presentation of Findings

This chapter presents findings from the analysis of data derived from the questions that were posed to respondents. Respondents were asked questions ranging from their computer skills, access to computers, and telecommunications connectivity in their area.

### Computer literacy

Table 1: Computer skills and competencies of respondents.

| Question                     | Frequency  | Percentage (%)          |
|------------------------------|--|-------------------------|
| Do you have computer skills? | Yes=186<br>No=58   | 76.2%<br>23.8%          |
| <b>Computer skills</b>       |  |                         |
| Word processing              | Very good=68<br>Good=68<br>Fair=45                         | 37.6%<br>37.6%<br>24.9% |
| E-mail                       | Very good=40<br>Good=55<br>Fair=44                         | 28.8%<br>39.6%<br>31.7% |
| Internet                     | Very good=38<br>Good=56<br>Fair=47                         | 27%<br>39.7%<br>33.3%   |
| PowerPoint                   | Very good=24<br>Good=36<br>Fair=49                         | 22%<br>33%<br>45%       |
| Excel                        | Very good=27<br>Good=53<br>Fair=52                         | 20.5%<br>40.2%<br>39.4% |
| Access                       | Very good=20<br>Good=43<br>Fair=49                         | 17.9%<br>38.4%<br>43.8% |
| <b>Question</b>              |  |                         |
| How did you gain the skills? | a. I attended a course=75<br>b. I acquired them at work=94 | 44.4%<br>55.6%          |

The table shows that 76.2% of respondents are computer literate, 75% of respondents are skilled in Word Processing, and 69% are skilled in e-mail and 55% in PowerPoint (55%). Those who are equipped with Internet, Excel and Access skills are represented by 60%, 60.7% and 56.3% respectively. More than 55% of respondents said they gained computer skills at work, while 44.4% acquired them through a computer course.

### Accessibility to computers

Respondents were asked to state whether they have access to computers and their services.

Table 2: Learners accessibility to computers and the internet

| Questions                         | Frequency                                     | Percentages (%) |
|-----------------------------------|---|-----------------|
| Where do you access the computer? | At home=45<br>At work=172<br>Friends/relative | 18.4%<br>70%    |

|   |  |                                  |
|---|--|----------------------------------|
|   | place=14<br>No access=38   | 5.7%<br>15.5%                    |
| How often do you use the computer?  | Daily=107<br>Once a week=40<br>Rarely=57<br>Not at all=32              | 45.3%<br>16.9%<br>24.2%<br>13.6% |
| Do you have the chance to use the computer as a resource for learning?  | Yes=123<br>No=116  | 51.5%<br>48.5%                   |
| Would you be interested in a course, which equips you with skills of using the computer to enhance your career? | Yes=240<br>No=3  | 98.8%<br>1.2%                    |
| Do you have access to internet?   | Yes=114<br>No=127  | 47.3%<br>52.7%                   |
| If yes, where do you access the internet  | Home=14<br>Work=88<br>Internet café's=31<br>Friends and<br>relatives=5 | 10.1%<br>63.7%<br>22.5%<br>3.6%  |

The table shows that 70% of respondents access computers at work as compared to 18.4% who said they access computers at home. Only 5.7% respondents indicated that they access computers at friends/relative's places, while 15.5% have no access to computers at all. 45.3% of respondents said they use computers daily, while 16.9% said they use them once a week. Again 13.6% did not use computers at all. 51.5% said that they have access to use computers as a resource for learning, while 48.5% do not have access. Almost 100% of respondents indicated that they are interested in a course that would equip them with skills to enhance their careers and only 1.2% is not interested. 47.3% said they have access to internet, while 52.7% do not have access to internet. 63.7% of respondents access internet at work, while 22.5% of respondents access internet at internet café's. Only 10.1% and 3.6% access internet at home and relatives respectively.

### Connectivity of Power and Telecommunication infrastructure

Respondents were asked whether there is reliable infrastructure in their areas.

Table 3: Learner perceptions on availability of power and tele-connectivity in their area

| Questions  | Frequency                           | Percentage (%)          |
|--|-------------------------------------|-------------------------|
| Is there a reliable source of electrical power in your area? | Yes=237<br>No=8                     | 96.7%<br>3.3%           |
| If no, what source of power do you use?                      | Batteries=3<br>Solar=6<br>Nothing=2 | 27.3%<br>54.5%<br>18.2% |
| How is telecommunication connectivity in the area?           | Good=227<br>Bad=7<br>Poor=10        | 93%<br>2.9%<br>4.1%     |

Almost all of the learners interviewed had a reliable source of electrical power, and this is shown by close to 97% and only 3.3% indicated that they do not have a reliable source of electrical power. From the table, 93% of respondents have indicated that telecommunication connectivity in their areas is good. Only 2.9% and 4.1% of respondents said that it is bad and poor respectively.

### Knowledge of E-learning

Learners were asked whether they had ever done any course on line, if they were interested in doing courses through on line and if they were ready to start doing courses on line

Table 4: Respondents knowledge of e-learning and interest in doing it

| Questions   | Frequency   | Percentage (%)   |
|---|---|------------------|
| Have you ever done a course on-line?                    | Yes=7<br>No=232                                   | 2.9%<br>97.1%    |
| Are you interested in studying on-line?                 | Yes=225<br>No=8                                   | 96.6%<br>3.4%    |
| Do you have time to commit to e-learning if introduced? | Yes=219<br>No=20                                  | 91.6%<br>8.4%    |
| How useful do you think e-learning would be to you?     | Very useful=200<br>Waste of time=0<br>Not sure=41 | 83%<br><br>17.0% |
| Are you personally ready for e-learning?                | Yes=217<br>No=23                                  | 90.4%<br>9.6%    |

The table shows that almost all of the respondents said that they have never done a course on-line before and this is clearly shown by around 97% and only 2.9% of respondents said they have done a course on-line before. Again close to 97% of respondents indicated that they are interested in doing their courses on-line, and 3.4% did not show interest in e-learning. 91.6% of respondents said they have enough time to commit to e-learning if introduced. More than 80% of respondents indicated that e-learning would be very useful to them and only 17.0% were not sure. 90.4% of respondents said they are ready for e-learning if introduced.

## Discussion of findings

### Computer Literacy

A very satisfying number of learners have positively indicated that they have computer skills as pointed out by their skills in areas such as Word processing, E-mail, Internet, PowerPoint, Excel, and Access. This is encouraging as it will facilitate the implementation of e-learning and making it easy and rewarding to learners because most of them would be conversant with the use of computers and their programmes. Most of the learners admitted that they gained computer skills at work since, the majority of them are working. Some said they acquired skills, through their computers at home, while others said they learned how to use computer at universities as computer studies is a bridging course in every programme. For those who pointed out that they do not have any computer skills, they still showed interest and eagerness in pursuing a computer course so that they can benefit from e-learning initiative.

### Accessibility to computers

The majority of respondents said that they access computers at work, this is probably so because most of them are employed. This is still a positive response because it shows that most learners have access to computers at work, which can make their on-line studies easy and convenient. An average number of learners said they use computers daily, this shows that they work with computers on daily basis to execute their duties and this can be a very encouraging response as far as the implementation of e-learning is concerned.

Again more than half of learners who participated in this survey said that they have the opportunities to use the computer as a source for learning, mostly at their respective organisations. Most learners indicated that they access computer at work hence most learners will depend heavily on the computers at their respective organisation to carry out their studies. A great number of learners have expressed great interest in pursuing a course which equips them with skills of using computer to enhance their career. This shows how learners are excited about the prospect of doing their courses on-line.



Although a satisfying number of learners have access to computers and are also equipped with various computer skills, the only disturbing factor is that more than half of them have no access to internet. Internet services is a core delivery instrument for e-learning and as such this can be an impediment in the implementation of this project. For those who said they have access to internet, pointed out that they access it at work, on other hand this can be a plus factor because that the same place, most of them can access computers.

### **Connectivity of Power and Telecommunication**

Another positive response that came from this survey is that learners admitted that telecommunication and electrical power in their respective areas is reliable and good. This will go a long way in the facilitation of the e-learning project as computers need a reliable source of power.

The study shows that almost all of learners have never done any course on-line. This can be attributed to the fact that e-learning is still new in Botswana and computer accessibility is still not a case to many Batswana. Only a handful of learners admitted that they have done their courses on-line and their perception about e-learning was that it is good as one can access information anytime they want, and they also cited that it is convenient and saves time.

Learners have shown great enthusiasm in pursuing their courses on-line and their interest is so amazing. They have also pledged to commit their time to e-learning if introduced. The responses are overwhelming and this gives a green light on the anticipated prospects of e-learning initiative.

The study shows that most learners seem to understand what e-learning is, as they support and regard it as a useful tool that can enhance their learning. Learners seem to have been excited by the prospect of studying on-line and are personally ready for e-learning if the college can introduce it. But there are few who felt that they are not ready to do their courses on-line citing lack of access to computers and its services like internet as their main impediment. Some lamented lack of electric power in their areas as their main hindrance to declare their readiness for this initiative.

### **Conclusion and Recommendations**

The results of this study demonstrate that information amassed will have a positive implication on the implementation of e-learning. This so, because an overwhelming number of learners have expressed great admiration in e-learning initiative and the interest in doing their courses on-line is unbelievable. This kind of scenario gives the College an opportunity to evaluate the need to implement e-learning as per one of its strategic goals embodied in the strategic plan (2006-2009).

Adoption of e-learning is a shift towards a new learning culture. While it is exciting to adopt e-learning as a strategy, uncalculated move may lead to unhealthy consequences. Critical requirements for successful e-learning implementation are an effective e-learning strategy and appropriate change management strategies for specific organisational context.

As a result it is very imperative that BOCODOL put proper mechanisms in place for the implementation of this project. The right equipments and staff have to be acquired to facilitate the implementation process.

Although most of the learners are computer literate, the only detrimental issue is lack of access to internet experienced by rather a high number of learners. Internet service is a critical aspect of e-learning and in order for BOCODOL to ensure that this project see the light of the day, it is very imperative that computer facilities be developed in BOCODOL regional offices for learners to access internet. Given the above, a key role of government should be to ensure that all learners have basic IT skills. It should also support effective standard development and facilitation of provision of necessary infrastructure.

It is also very critical that BOCODOL would need to work closely with other stakeholders, like government departments where the majority of learners are working. Employers would have to be implored to allow and give support to learners who would need access to internet to pursue their studies on-line. The College also needs to organize an orientation workshop to fully equip the potential learners about the whole processes of e-learning.

It is also imperative to perform constant and timely evaluation of the quality of e-learning courses offered by distance learning institutions of in the higher education arena, using the most current research on e-learning, personal experience in e-learning, and the experiences of those colleges and universities that are considered leaders in developing and delivering distance learning courses and programs.

Literature also demonstrates that e-learning could be very effective if instituted under appropriate circumstances. If it is delivered in support of a recognized business need that commands attention throughout the organization, appropriate structures to support learning should be put in place. If learners are motivated to learn, and have good IT skills at the start the implementation of e-learning could prove a worthy exercise. These issues are critical for the College to identify and address to ensure that the e-learning becomes an achievable and viable initiative.

Despite some seemingly existing technical and organizational problems, there is chance that given the determination within the organization and the willingness of government to provide infrastructure necessary, the e-learning initiative will advance. However, this will be determined by effective good practice in organisations, in which a small scaled approach is adopted, which allows for close monitoring and management of this e-learning initiative.

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