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# Locational Dynamics Influencing the Information Environment of Distance Learners in Botswana

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Additional information is available at the end of the chapter

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## 1. Introduction

The standard practice in any open and distance learning (ODL) programme is the attraction of students from various locations – metropolitan and non-metropolitan areas, where they live or work. It is also not uncommon to have students drawn from across the border of the country where the distance institution is located. With only one public university operating limited distance education programmes, the space was wide open for the encroachment of a number of other trans-national or cross-border teaching institutions to operate their distance courses in Botswana. The operation of distance education in Botswana like any other country has ensured that learning cannot be restricted to any particular place or time, even as learners undertake their studies from various remote locations. While distance teaching institutions would expect the students to have access to some degree of information resources and services for the advancement of their programme, whether provision is adequately made for them is another matter. It then stands to reason the extent to which the home-based distance teaching institution in Botswana make provision for the library and information needs of its students. The issue may become compounded when cross-border education is involved. This study attempts to establish and provide a holistic understanding of the information environment where distance learners operate in Botswana. In other words, the study is undertaken to investigate the information environment under which distance learners and, or cross-border students operate in Botswana.

As distance learners go about their studies by distance mode in various scattered locations across the country, it is assumed that accessibility to appropriate information resources and services would reduce the effect of distance and isolation that can be experienced in this type of learning mode. This therefore brings about the idea of the information environment in which the distance learners operate. In this respect a number of questions can be raised:

what constitutes the information environment of distance learners in their remote locations? What are their information needs? What information resources and channels are available for them? How do they go about obtaining the required information and thus meeting their information needs even in their remote locations? How is their environment like in terms of available, accessible and reliable information services and infrastructures? While library may be a major source, it should be understood that information environment in this new age of information goes beyond the library. In any case a library may not be available everywhere the learners are located. What other sources of information are available and can be utilised in such locations? It is assumed there are other sources of information like the Internet, email, mass-media, etc. Indeed, there is a hybrid information environment capable of being utilised by distance learners irrespective of how far they may live from their institutions. While the (hybrid) information environment is considered, the issue of digital divide, which is capable of further marginalizing the “info-poor” particularly in Africa, cannot be overlooked.

In reference [1] Joint Information Systems Committee of the United Kingdom observes that “the information environment of users should aim to allow discovery, access and use of resources for research and learning irrespective of a user’s location”. Information environment in this study is viewed as the type of environment which individuals interact with either for purposes of providing or obtaining information for use in day-to-day living or to perform a task. The task is seen as distance learning. Information environment can also refer to the context in which information is sourced, accessed, managed, utilised and generally made available for the use of people (distance learners) for various purposes. The components of the information environment include: the information needs, information seeking behaviour and information **sources**. How do distance learners being students in remote locations and far away distances from their institutions fair in relation to the above? Information support services are known to be part of higher education programmes that add to the value and quality of learning. Distance learners are known to suffer from failure, low pass rate and indeed, withdrawal from or discontinuance of participation in distance education. Part of the reasons for this is lack of adequate academic assistance. In a study cited in [2] some reasons are highlighted on students drop out at the United Kingdom Open University – a foremost distance teaching institution in the United Kingdom. It was established that two-thirds of those who had dropped out indicated lack of adequate academic assistance as one of the main reasons for dropping out. This paper believes that academic assistance can be found in making good information resources and library services available to distance learners, and that the absence of this vital academic assistance is envisaged as constituting part of the learners’ dilemma. It is an established fact that there is a significant presence of a number of distance teaching institutions in Botswana offering variety of courses and programmes to people in the country. At variance with this is the seemingly perceived evidence of absence of quality information resources and services to enhance distance learners motivation, learning process and learning success in various locations that the students live.

Library and information service has always been of great value in educational and research institutions as well as other environments where learning takes place. In a technological age, library and information service to distance learners cannot be limited to what is obtainable within the four walls of a physical library. Thus other sources and channels of information such as computer-mediated or electronic devices like the Internet and email, telephone, mass-media (radio and television), print materials and even friends or colleagues and lecturers are paramount to distance learners. In Botswana, apart from a sizeable number of government-owned libraries established all over the country including rural areas, the ICT policy of Government creates a conducive information environment for the people. Since 1998 when Botswana Government liberalized the telecommunications services in the country, a lot of development has been witnessed in communication industry. There has been the provision of mobile telephony service when licence was awarded to two private companies and later the third mobile telephony (license) issued to Botswana Telecommunication Corporation (BTC). An increasing growth to the sector was witnessed with the addition of other service providers such as the Internet service providers (ISPs), data service providers (DSPs) and private telecommunications networks (PTNs). Of course, there has also been the institution of Maitlamo National ICT policy in Botswana, which ensured that some giant steps were taken to implement the provision of ICTs across the country. The implementation of ICT policy is aiding the work of library, information service and information dissemination in the country.

This paper examines the information seeking behaviour of and information sources used by the distance learners of four tertiary level institutions in meeting their information needs in their various locations. It attempts to determine if the distance learners are well motivated in their various remote locations? Do the students receive adequate academic assistance to forestall high failure rates? Is the learning process of the cross-border distance teaching institutions appropriately developed to ensure the learning success of the ubiquitous learners in various locations in Botswana? How does the location of students affect meeting their information needs?

## 2. Literature review

The review of literature will revolve around the identified three main components of information environment with distance learning/learner as a denominator. The components include the information needs, information seeking behavior and information sources. Some attempts have been made to explain or substantiate on the information needs of distance learners. Taking a peep into the views of authors on the information needs of distance learners, in reference [3], the categorization of distance students information requirements comprises *Need for materials and facilities*, where distance learners need several kinds of materials such as reference books, texts books, journals, reports, self-instructional materials (SIMs) etc. They require various facilities, viz. library reading room as well as stack room space with proper display of documents. Second is *Need for information services*: such as bibliographic instruction for print and non-print materials; information about distance

learning agencies, and support services. Third has been defined as *Need for user services*: Distance learners also need professional guidance and support from the library staff about using library collection, using equipment and facilities available at the library. In another submission in [4], the following requirements are said to constitute the basic information needs of distance learners: access to adequate facilities; core collections; professional library staff; reserve reading collections; and supplementary materials. In another submission in reference [5], it was argued that distance learners generally need some of the following types of ... information services, namely the loan of a specific book/reference book usually one referred to in their self instructional materials (SIMs); a photocopy of a specific journal article or single chapter of a book; a photocopy of previous examination papers for their course; information/ material on a particular subject; SIMs; viewing and listening to audio-visual materials; using the different type of library collection; and using equipment and facilities available. Also in [6] that details establishing and managing distance librarianship, the Commonwealth of Learning notes that the basic information services distance learners need are access to information resources, such as texts, supplementary reading and reference services; learning how to find the information they need from the information that is available and developing ways to apply the information gleaned and to make sound, information-based decisions.

Considering the information seeking behaviour element of the information environment of distance learners, it is perceived as the manner individuals articulate their information needs, search, recognize, retrieve and use information. It is the mode an individual goes about to search for the information he needs to perform a task at hand or meet his/her needs. In this process the information sources or channels are consulted. In this respect some empirical studies conducted on distance learners to establish their information seeking behaviour are considered. In a survey on information use among distance learners associated with Western Colorado Graduate Center in the US in reference [7], it was found that majority of the survey participants borrowed materials from local academic and local public libraries. The result also revealed that more than half of the students did not use the main campus (distance education provider) library. Response by 71 students revealed that 37% borrowed materials from distance education provider libraries, 69% used the local academic library, 73% used the local public library and 20% used other resources, such as a library consortia, professional library, or personal material and online resources. Reasons given for using what they used include: ease of use, location and resources, among others. In Botswana, public libraries are known to enjoy more widespread than academic libraries as they are sited in several villages, towns and cities. It is another issue if the public libraries stock useful and relevant tertiary level materials that could be used by the distance learners found in various locations across the country.

An investigation conducted in [8] attempted to establish the information seeking behaviour of students involved in distance education for San Jose State University in the US. The investigator advocates that if the information needs of distance education students are to be met, information practitioners/librarians must understand the way and manner students

select a source for information when they do not have access to the main library of the sponsoring institution. In responding to the open-ended questions, there was evidence of huge reliance on the public library. It was noted that the frequency of selection of the public library probably reflects the fact that public libraries are more numerous and geographically accessible than academic libraries. Materials held at home are also very frequently used, indicating extensive home collections or the lack of time and/or library skills to search for materials. The inability of distance learners to have easy access to the main library of their institutions from various locations is seen as one of the major problems that gave rise to this study. Consequently, a number of research questions are drawn from this problem. These include: What information resources and services are available for the use of distance learners in their various remote locations in Botswana? What information sources/channels are (readily) available to distance learners in Botswana and how do they use the channels? Do they still have to travel long distances to have their library and information needs met?

The advent of the WWW/Internet, with its varied features, has universally added a new and profound dimension to the provision of open and distance learning (ODL) and information. It has demonstrated to be highly useful in bridging the distance between the school and its distance students and consequently altered the behaviour pattern of the students when seeking to meet their information needs. The key features of the WWW, which makes its application indispensable to the providers of open and distance education and information, are well articulated in [9]. These include: Information access, Interactive learning and Networked communication. Information access gives the description of materials that are used to deliver content. The key feature of the WWW documents that are primarily designed to carry information is that the materials and documents are usually electronic versions of existing paper-based information and courses. According to the author, the reasons for delivering such materials via the WWW appear to derive mainly from: Information accessibility, whereby teachers could post information that could be accessed by students across many locations; Reduced printing, which is possible when teachers provide electronic rather than printed documents for students; Information could be delivered in time, and teachers could post materials before lecture and workshop sessions for immediate access by students. The author notes that In an interactive learning environment it is possible to provide a series of documents rather than a page for students to read. This is done through the use of hyperlinks available on the WWW. Interactive learning is used in relation to WWW to describe application where feedback and responses are provided by technology in learning situations. Networked communication - The WWW, according to the author, supports and uses different forms of communication, which can be used in numerous ways in a student-centred learning environment. Some of these forms of communication are categorised as: E-mail enabling people to communicate directly with each other, and to send private or public messages to each other either in a one-to-one or one-to-many mode; Bulletin boards where information is posted for public viewing and their reactions or remarks invited; Chat sessions involving real-time text-based discussions between parties either privately and, or in public; Real-time online audio conferencing and videoconferencing where two parties can see or hear each other during interaction.

It is noted from the above features that the WWW or the Internet is an asset and a valuable tool in an information environment. In the same manner as the Internet is useful in conveying education to its adherents in their various distance learning locations, so it is a veritable vehicle used to take library and information to the distance learners in their homes, offices and other locations they may be found. All the features of the WWW discussed, namely, information access, interactive learning and networked communication, are the needed characteristics that can effectively bridge the gap between the students and the information world. In reference [10] the belief was established that the “emerging technologies have opened more opportunities to vary medium and methods, leading to significant changes in the way distance learning can be accomplished”. These changes are typical of what the application of the WWW or the Internet is out to accomplish. From developed to developing countries, literature is replete of the development of websites by various institutions, libraries, information and resource centres, where catalogues, full-text databases, e-books, e-journals etc. are made accessible to users from their remote locations.

In a survey on distance learners at the University of Maryland University College (UMUC) in [11], the findings confirm other studies and observations suggesting that students prefer using online resources to physical library buildings and collections. In exploring some research questions about library and web usage, the investigators found that students ranked full-text library databases and off-campus access to the library catalog as the most useful library services provided. Respondents also indicated a preference for web-based delivery of library instruction over other methods of instruction, and found web-based information about library services more useful than other formats.

Possibly following the documented or oral guidelines at the University of Otago in reference [12], distance education in New Zealand was described as one of the most comprehensive, experienced and efficient systems in the world. It was revealed that the University Extension - distance education department, provides course materials required by the students, while the library remains a significant and extensive adjunct to students seeking further supportive literature or who have projects requiring in-depth bibliographies and referenced assignments. On the philosophy of the university on library service to distance learners, it was stated that the university takes the stance that students at a distance have full and equal right to access the more than 1.35 million volumes held in the various libraries located on the campus. The philosophy of maximizing library facilities to distance learners does not stop at books, but also includes access to journals – both abstracts and articles as well as recourse to a powerful national interlending network. The following challenges were noticed and dealt with at the University of Otago. First, *Time factors*: inequities are observed in loan periods as a result of handling and postal delays. In order to address this problem, the author says the library “automatically codes in an extended loan period to all students in a distance programme. Second, *Accessibility*: On-campus students have greater access to personal help and material within the framework of library operating hours. This disadvantage on the part of the distance learners was compensated for by being contactable via phone, fax, answering machine and mail. Third, *Photocopies*: off-campus students do not

have physical access to original articles and journals. In deference to this, the distance service organises photocopies of all that is required subject to normal copyright regulations.

A European perspective of library and information services to distance learners appears to have been added in [13]. In a paper on academic library services to non-traditional students in the UK, the author declares that enquiry services can be offered by post as is the practice at Northern College of Education in Aberdeen where students use "send me something on ...". It was also noted that distance learners desire to have access to catalogues can be achieved by depositing a microform catalogues in local centres or by offering networked access via a modem. Performing an enquiry service for distance learners and sending results by post or by fax as obtained at Sheffield Hallam University library is another means. Promotion of library services to client groups through onsite visitations, correspondence, telephone access and library newsletter as obtained in many institutions in Europe (and America) is another method identified. Another means of providing access to materials in the distance students environment is by securing for them access to other academic libraries. The practice of sending book boxes to remote locations as practised in UK departments of continuing education is also recommended. The London Plus scheme and Dutch higher education system, which give all students the right to borrow from any academic library, are good examples of this method.

In Africa the experience of library and information provision is probably a cause for concern. At the University of Nairobi, Kenya in reference [14] it is noted that the external (distance) degree students are entitled to the same facilities as other students. It is however noted with regret that this is only possible when the students are actually on campus during residential sessions. In order that they might use library facilities in their various locations, the students are to negotiate arrangements themselves to exploit all library resources located near them. A number of library facilities that the students could approach include the Kenya National Library Service, College libraries and British Council libraries. The reliance of the higher institution of learning on public library to provide support service to distance learners also manifests in the treatise. It is understood that the Kenya National Library Service is provided with a list of recommended reference books. Another researcher in [15] confirms the earlier report in his findings that the Faculty of Education of the University of Nairobi used part of the fees paid by the external students to buy essential books and distributed them to students. This procedure was soon discontinued as it proved unsustainable. The students are therefore encouraged to either buy their own books, borrow from public libraries, public university libraries or non-governmental institutions. At Kenyatta University, the study established that students had to visit the university library to access and borrow reading materials or make use of other relevant libraries in their locality. While some depressing picture is observed in the two institutions mentioned, a more encouraging scenario was found in the service to distance learners of African Virtual University (AVU). It was confirmed that AVU library has created a digital library consisting of e-journals, e-books and online archives to facilitate access to worldwide resources by students. Though the study confirms that all students obtain user identification, whether they are all able to access the facilities from their various locations as and when required is another matter.

Conversely, the care for the ODL students at Makerere University, Uganda, leaves a lot to be desired. In a treatise in [16], student support was carefully outlined as referring to the culture of care accorded to students with the aim of ensuring that they accomplish their studies within the stipulated time. However, in what unquestionably can be regarded as a second rate service to a seemingly unwanted programme, the author asserts the consciousness of the authorities of Makerere University in not, among other support services, ensuring that all University service units provide all registered students on ODL programmes with access to libraries, computer laboratories, lecture rooms/theatres, laboratories and other learning resources. As if that position was not bad enough, the author reiterates that Makerere University does not also ensure that the University Library provides flexible policies and services unique to ODL learners at all ODL centres, for example longer borrowing periods.

The information needs and information seeking behaviour of distance learners at the Institute of Extra-Mural Studies, Maseru in Lesotho was also reported in [17]. The researchers reported that living long distances from their institution, among others, has made distance learners depend on easily available sources of information such as colleagues, personal collections, co-workers and family members, which may not necessarily be the best sources of information to meet their needs. The case of the University of Botswana (UB) that operates a dual mode system was reported in [18]. Operating under the Customers and Extension service unit, the UB Library maintains a small collection of some recommended materials in some regional centres where the students meet for occasional residential sessions. The entire library collection is also accessible through an *opac* system. Whilst books, on request, can be posted to the students in their various locations, it is required of them (the learners) to pay for the return postage. Further, electronic databases provide references to periodical articles in a wide variety of subjects. It thus means that the students with access to the Internet can access some of these databases and indexes, to which the University of Botswana Library subscribes. Such databases include EbscoHost, Emerald and SA ePublications. Students are also taught information skills in the general education course (GEC) 121 and 122 to search electronic resources. In another study on UB reported in [19], it was revealed that significant numbers of distance learners did not have access to a telephone (38%), facsimile (78%), a computer (89%), email (92%), or the Internet (97%). While nine out of ten indicated a need for materials beyond course readings, almost half (48%) had not used a library, a quarter used the University Library, and a quarter visited a public library. It was recommended that the university library should go into collaborative partnership with branches of the public library spread all over the country, establish more branches of its own, and install computers with Internet access in the identified regional centres across the country. In another work [20], a hypothesis that the *library and information needs of the University of Botswana students in satellite (off) campuses are not significantly adequately met was tested*. Within the limit of the materials or resources available for their use, including public library facilities, the students were asked to indicate whether *all, most, some* or *none* of their information needs were met by the resources available. A significant majority

(72.5%) of respondents indicated that only some of their information needs were met. Only one respondent (1.3%) indicated that all his or her information needs were met, while another insignificant four respondents said that most of their information needs were met. Going by the established result, ( $\chi^2 = 103.500$ ;  $p < 0.05$ ), the considered view is that the library and information needs of the students in satellite campuses of the University were not met. Hence, the hypothesis was accepted.

Information sources or channels are the means used to transfer information to a target population or audience. These constitute one of the major components of information environment. In order to have access to the information needed or required, there are a number of possible channels, sources or resources that may be explored by distance learners. These channels/sources, among others, include the electronic databases and dial-in access to computer catalogues, remote or modem access to CD-ROM, emailing system, facsimile and telephone. Other information sources or channels that are generally open to distance learners include: radio and television, the Internet, the library, book store, lecturers or tutors, peer group, friends or colleagues etc.

The problem of location is of paramount importance to the present study as it is assumed that those in urban areas might have greater opportunities to access ICTs and other information resource carriers than the rural dwellers. Thus far, the information and communication technologies (ICTs), for reasons of diversity of use, constitute one of the largest chunks of channels or sources through which distance learners may obtain their information needs. The ICTs have a central role to play because of their capacity to support teaching and learning process as well as assisting the dispensation of information services to the distance learners in their virtual locations.

### 3. Research methodology

Research design for the study was both qualitative and quantitative and the method used was survey. The study was conducted on four distance teaching institutions that were firmly rooted in Botswana: one local (home-based), and three cross-border institutions. The local or home based institution was the University of Botswana (UB), the three cross-border institutions were the University of Derby (UD), the University of South Africa (UNISA), and the Management College of Southern Africa (MANCOSA). The empirical element of the study was conducted using the questionnaire as instrument. A 20% sample size was randomly selected from the University of Botswana and University of South Africa, the institutions with 500 or more students, while the census method was applied to the UD and MANCOSA, which had 100 or fewer students in Botswana. A total of 519 of 1,996 (total population) became the sample size. A total of 364 copies of the questionnaire were returned. This gave the response rate of 70.1%. Data abstracted were analysed using the *SPSS* programme. Cross-tabulations and chi-square, non-parametric statistical significance tests were developed to test the relationship of one variable to groupings of others.

## 4. Findings

### 4.1. Characteristics of respondents

#### 4.1.1. Location

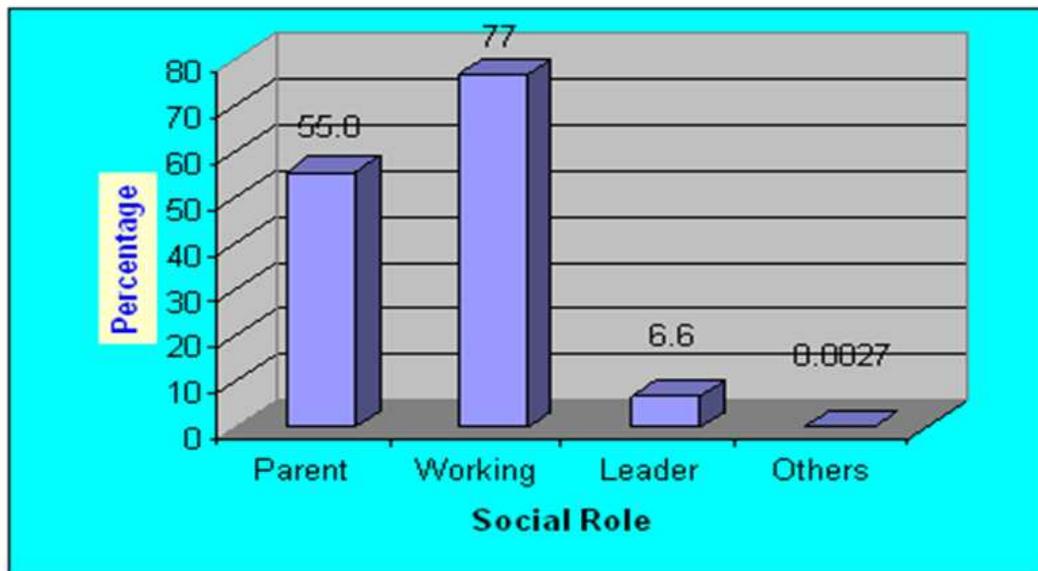
The respondents significantly fall into different locations in terms of where they lived. Majority (225 or 61.8%) of the respondents lived in the city, 58 (15.9%) indicated they were living in towns and 81 (22.3%) respondents said they lived in villages. In other words, a total of 283 (225 and 58) or 77.7 percent respondents lived in metropolitan/urban areas which offer a much better and richer information environment and 81 (22.3%) of them lived in rural locations where information environment can be considered poor and cannot be favourably compared with those in urban areas. In crosstabulating gender with location, the result further shows that more females were also located in the city and town (considered as urban or metropolitan areas) as well as village (rural areas) than their male counterparts. Table 1 below gives further details.

		Location				
			City	Town	Village	Total
Gender	Male	Count	90(24.7%)	27(7.4%)	38(10.4%)	155(42.6%)
	Female	Count	135(37.1%)	31(8.5%)	43(11.8%)	209(57.4%)
Total		Count	225(61.8%)	58(15.9%)	81(22.3%)	364(100.0%)

**Table 1.** Gender and **Location** Distribution of Study Sample: Crosstabulation

#### 4.1.2. Social role

Distance education learners are usually involved in other major social roles, which is often one of the reasons why such learners opt for distance education. Distance learners may have full- or part-time jobs, or could be community leaders, (single) parents, etc. The responsibilities and circumstances of such roles might affect their access to and use of information resources either positively or negatively. The study therefore investigated the nature of the major social roles played by the respondents. Figure 1 shows the percentages of the respondents engaged in social roles. A total of 280 or 77% respondents indicated they were working and 203 (55.8%) were parents, and 24 (6.6%) were community leaders. The social roles of distance learners are capable of impacting on the time at their disposal to access and use information resources and services. A traditional full time student, for instance, would have more time to access and use information resources and services in an information-rich environment than a distance learner who is not only a part time (distance education) student, but also a full-time worker and, or a community leader who hardly lives in an information-rich environment.

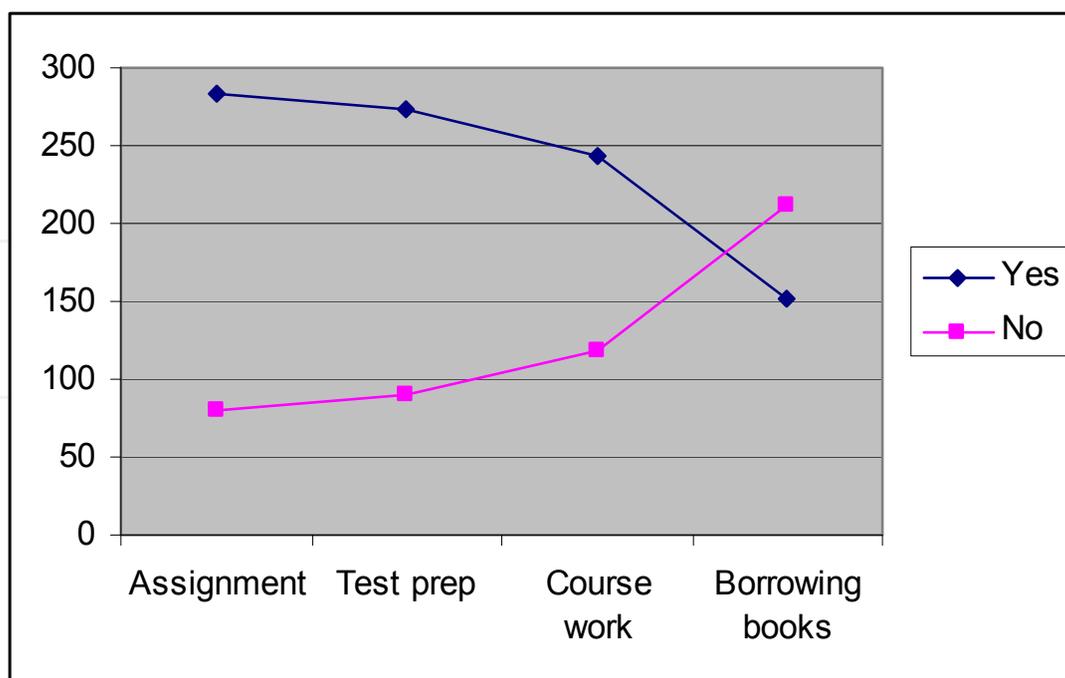


**Figure 1.** Respondents' social roles

Arising from the objectives designed, five research questions were raised to provide some guidance and driving force for this study. The research questions are treated in this section with necessary allusion made to the objectives as deemed appropriate. For reasons of convenience, the object of discussion relating to the objectives of study is applied as the basis to compartmentalize the findings.

The first objective of the study was to identify the information needs of the distance learners. As such, the objective generated the research question which asked: *"What are the information needs of distance learners in Botswana"*. In addressing the question, some options were made available in the questionnaire for the respondents to choose from. From the reaction of respondents, it is obvious but not surprising to note that 'subjects relating to their course of study' was topmost in the area of their information needs. The option attracted 273 (75%) respondents. The thirst to acquire greater skill in the use of information and communication technologies e.g. the Internet, was seen as the second priority area. A total of 218 (60%) respondents indicated this option as an information need area. The remaining information need areas indicated by about half of respondents include information on Tests, examinations and residential sessions/periods (51.6%) and the Development of information searching skills (50.8 percent).

In trying to further ascertain the information needs of the distance learners, another question to determine the reasons the respondents would require information was raised. With the options provided, 283 (77.7%) respondents indicated they would require information to write assignment, 80 of them (22.0%) said 'no'. To study and prepare for test and examination, 273 (75%) responded in the affirmative, 90 of them (24.7%) in the negative. For coursework-related information needs, 244 (67%) respondents indicated 'yes', while 119 (32.7%) said 'no'. Another 152 (41.8%) indicated 'yes' to the option of borrowing books, whilst 211 or 58% indicated 'no'. Figure 2 gives the breakdown of the 'yes' and 'no' responses of the respondents.



**Figure 2.** Reasons to require information

Can the respondents' locations affect their information needs? An attempt was made to establish the relationships by cross-tabulating the variables and performing chi-square tests. Table 2 indicates that location was significantly related to information needs in the areas of "writing tests, examinations and doing residential sessions" ( $X^2 = 11.026$ ,  $df = 2$ ,  $p < .05$ ) and "making information-based decisions" ( $X^2 = 6.867$ ,  $df = 2$ ,  $p < .05$ ). No significant difference was found between the locations (urban and rural areas) in the other information needs areas.

Information Needs Areas	Chi-square	Df	Asymp. Sig. (2-sided)	Remark
Subjects relating to their course of study	2.315	2	.314	Not significant
Development of information search skills	.727	2	.695	Not significant
Tests, examinations and residential sessions/periods	11.026	2	.004	Significant
Use of ICT	1.296	2	.523	Not significant
Need for specialized info	4.986	2	.083	Not significant
Access to a help line	1.261	2	.532	Not significant
Making info based decisions	6.867	2	.032	Significant
Others	4.650	4	.325	Not significant

**Table 2.** Relationship between Location and Information needs

Table 3 shows the observed and expected counts in the cross-tabulation of the location and the information need area of doing “Tests, examinations and residential sessions. Comparison of the observed with the expected counts shows that the observed values are significantly different from the expected values. More respondents from the village (rural area) than expected indicated ‘Yes’ information on tests, examinations and residential sessions was a need area for them; whereas less respondents from the metropolitan areas (city and town) than expected said ‘no’ to information on tests, examination and residential sessions as a need area. The finding seems to suggest that respondents in the village are somewhat disadvantaged about information on tests, examinations and residential sessions than respondents in urban areas who have better access to information on the need area. Similarly, a comparison of the observed and the expected counts (in Table 4) shows that the expected values are significantly different from the observed values. While more respondents than expected in urban areas would say ‘yes’ to information-based decisions, less respondents than expected in the village would say ‘yes’. This seems to corroborate the theory of ‘information-rich and information-poor’ and that, more often than not, possibly because they have easy accessibility to information, those in urban centres take information based decisions than those in rural locations.

		Information needs area - Tests, examinations and residential sessions/periods				
			Yes	No	Total	% of Total
Location	City	Observed Count	<b>106(47.1%)</b>	<b>119(52.9%)</b>	225	61.8
		Expected Count	<b>116.2(51.6%)</b>	<b>108.8(48.4%)</b>	225.0	61.8
	Town	Observed Count	<b>27(46.6%)</b>	<b>31(53.4%)</b>	58	15.9
		Expected Count	<b>30.0(51.7%)</b>	<b>28.0(48.3%)</b>	58.0	15.9
	Village	Observed Count	<b>55(67.9%)</b>	<b>26(32.1%)</b>	81	22.3
		Expected Count	<b>41.8(51.6%)</b>	<b>39.2(48.4%)</b>	81.0	22.3
Total		Observed Count	<b>188(51.6%)</b>	<b>176(48.4%)</b>	364	100
		Expected Count	<b>188.0(51.6%)</b>	<b>176.0(48.4%)</b>	364.0	100.0

**Table 3.** Relationship between location and information needs - Tests, examinations and residential sessions/periods

		Information needs area - Making info based decisions				
			Yes	No	Total	% of Total
Location	City	Observed Count	71(31.6%)	154(68.4%)	225	61.8
		Expected Count	70.5(31.3%)	154.5(68.7%)	225.0	61.8
	Town	Observed Count	25(43.1%)	33(56.9%)	58	15.9
		Expected Count	18.2(31.4%)	39.8(68.6%)	58.0	15.9
	Village	Observed Count	18(22.2%)	63(77.8%)	81	22.3
		Expected Count	25.4(31.4%)	55.6(68.6%)	81.0	22.3
Total		Observed Count	114(31.3%)	250(68.7%)	364	100
		Expected Count	114.0(31.3%)	250.0(68.7%)	364.0	100.0

**Table 4.** Relationship between Location and Information needs: Making info based decisions

The study also attempted to check if the location of distance learners has any relationship with how the respondents obtained information using such sources like modules, colleagues, experts, internet, subject librarian, radio/television and coordinator. Respondents' locations and information sources were cross-tabulated and Chi-square tests were performed on the cross-tabulations. Table 5 shows that location was significantly related only to the use of the Internet as an information source ( $X^2 = 10.052$ ,  $df = 2$ ,  $p < .05$ ). No significant difference was found between the location and the remaining information sources.

How information is obtained	Chi-square	Df	Asymp. Sig. (2-sided)	Remark
I use my modules	.784	2	.676	Not significant
I discuss with colleagues	1.004	2	.605	Not significant
Ask for assist from expert	.127	2	.938	Not significant
I use Internet	10.052	2	.007	Significant
I speaks/write subject librarian	3.312	2	.191	Not significant
I listen to radio/television	.444	2	.801	Not significant
I approach coordinator	.118	2	.943	Not Significant

**Table 5.** Relationship between Location and how information is obtained by respondents

Table 6 shows the expected and observed counts in the cross-tabulation of Location and the use of the Internet to obtain information. The expected counts in the cells of the table are based on the assumption that the row (Location) and the column (Information source: how I obtained information) variables do not depend on one another (i.e. have no relationships between them). Comparison of the observed with the expected counts indicates that the observed values are significantly different from the expected values, and that less

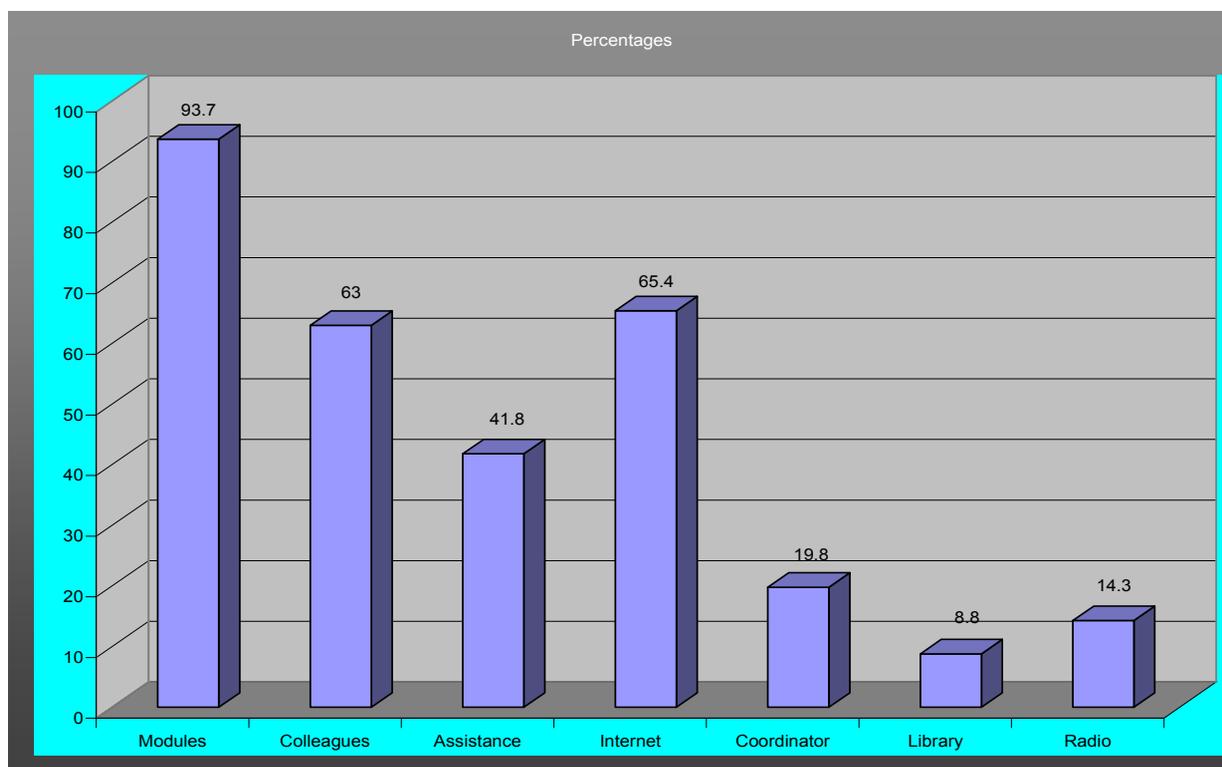
respondents than expected said 'yes' to using the Internet in the village (rural areas), whereas in the city/town (urban areas) more respondents than expected said 'yes'. It is therefore concluded that a significant relationship exists between location and use of the Internet as a means of obtaining information. The finding seems to confirm that urban dwellers use and have better access to the Internet than rural-based people.

		How info is obtained - I use internet				
			Yes	No	Total	% of Total
Location	City	Observed Count	157(69.8%)	68(30.2%)	225	61.8
		Expected Count	147.1(65.4%)	77.9(34.6%)	225.0	61.8
	Town	Observed Count	40(69%)	18(31%)	58	15.9
		Expected Count	37.9(65.3%)	20.1(34.7%)	58.0	15.9
	Village	Observed Count	41(50.6%)	40(49.4%)	81	22.3
		Expected Count	53.0(65.4%)	28.0(34.6%)	81.0	22.3
Total		Observed Count	238(65.4%)	126(34.6%)	364	100
		Expected Count	238.0(65.4%)	126.0(34.6%)	364.0	100.0

**Table 6.** Location of distance learners \* How info is obtained - I use internet

The second objective of the study was to determine how the information needs of distance learners are met. Consequently, the second research question was formulated. *How do distance learners meet their information needs?* In addressing the question, some questions were raised.

In their response to how they obtained the information needed to prepare their assignment, test or examination etc, majority of them (341) constituting 93.7% indicated that they used their modules and study packages. The use of the Internet came a distant second with 238 respondents (65.4%). This was followed by "I discuss with colleagues" option with 229 respondents (62.9 percent) subscribing to it. Other options used to obtain information needed to prepare their assignment etc include: asking for assistance from expert or knowledgeable people 41.8% (n = 152); approaching the coordinator or agent of the institution 19.8% (n = 72); listening to radio/television 14.3% (n = 52); and speaking to or writing subject librarian 8.8% (n = 32). While Figure 3 provides at a glance details of the responses, it is important to note that 8 respondents specified 'Others' in their responses. Five of them indicated they would borrow books from the library or from past and present students, 2 said they would buy prescribed books and 1 respondent said he/she obtained information needed "through email to and from the lecturer".



**Figure 3.** Meeting Information Needs

In yet another bid to determine how distance learners meet and satisfy their information needs, another question raised was to determine which of the information sources used satisfied their information needs. From the reaction of the respondents, the information source that satisfied majority of distance learners was the Internet (57.4%). This was followed by the University (of Botswana) Library (51.6%). Other information sources that satisfied them include Colleagues (37.1%); E-mail (31.9%); online databases/sources (28.8%); WebCT (27.7%); Public Library (27.5%); Coordinators (18.7%); Radio/TV (16.8%) and 'None' (those that indicated no information source satisfied their information needs) (6.1%). Other information sources which some respondents indicated satisfied their needs include books/modules/study guide ( $n = 3$ ); tutors ( $n = 1$ ) and past question papers ( $n = 1$ ). Figure 4 gives further details.

It has been said that distance learners are ubiquitous students. They are found both in the rural as well as urban areas. The relationships between these locations where they live and each of the information sources that satisfied their needs were cross-tabulated and Chi-square tests performed on the cross-tabulations. Table 7 shows that location was significantly related only to the University Library ( $X^2 = 10.778$ ,  $df = 2$ ,  $p < .05$ ) and the Internet ( $X^2 = 8.933$ ,  $df = 2$ ,  $p < .05$ ) as satisfying sources of information.

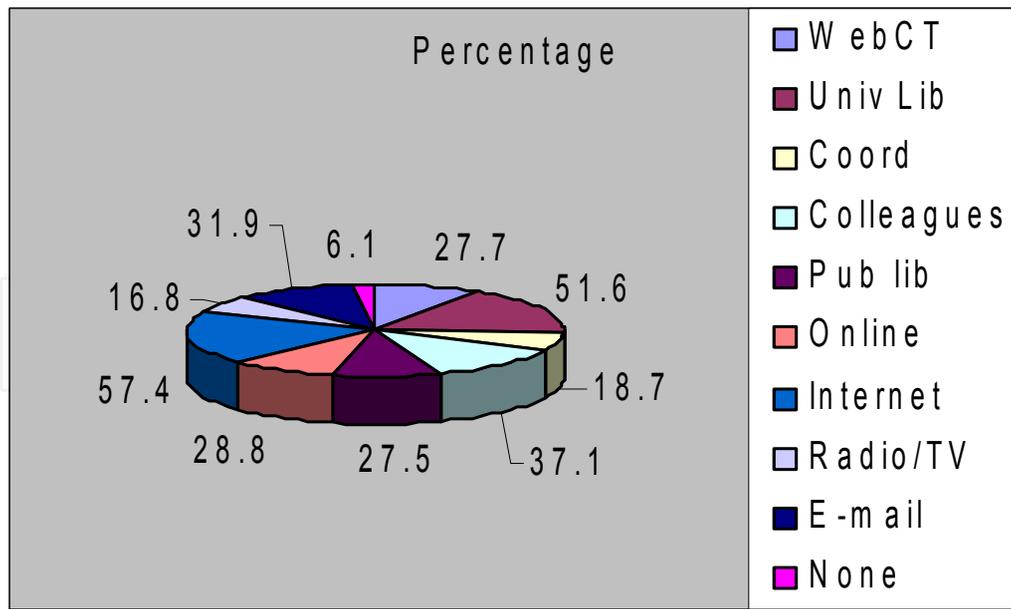


Figure 4. Satisfying Information Sources

Info sources satisfying needs -	Chi-square	Df	Asymp. Sig. (2-sided)	Remark
WebCT	.171	2	.918	Not Significant
Univ Library	10.778	2	.005	Significant
Coordinator	.296	2	.862	Not significant
Colleagues	1.112	2	.573	Not Significant
Public Library	5.826	6	.443	Not Significant
Online databases/sources	4.359	2	.113	Not significant
Internet	8.933	2	.011	Significant
Radio/Television	.764	2	.683	Not Significant
Email	1.928	2	.381	Not significant

Table 7. Relationship between Location and information sources satisfying needs of respondents

Tables 8 and 9 show the expected and observed counts in the cross-tabulation of Location and the use of the University Library and the Internet as sources of information that satisfy the information needs of distance learners in Botswana. The expected counts in the cells of the table are based on the assumption that the row (Location) and the column (Information sources that satisfy needs) variables do not depend on one another (i.e. are not associated with one another). Comparison of the observed with the expected counts indicates that the observed values are significantly different from the expected values, and that less respondents than expected in town and village said 'yes' to the University Library as an information source was satisfying to their information needs. By contrast, more respondents than expected in the city said 'yes'. The conclusion therefore is that there is a significant relationship between location and use of the University Library as a satisfying information source. The finding seems to be in tandem with the reality that the university library has

presence and effect in the two cities in Botswana where it is located and that the towns and villages feel the impact of the absence of the university library. The same impact is observed in the city as well as in the towns and villages on the use of the Internet as a satisfying information source. It is noted in Table 9 that more respondents than expected in the city said 'yes' to the Internet as satisfying their information needs, while in town and village, less respondents than expected said yes. This serves to confirm that Internet facilities are more available and possibly cheaper and easily accessible in the city than in town and village in Botswana.

		Info sources satisfying needs – Univ. Library				
			Yes	No	Total	% of Total
Location	City	Observed Count	<b>131(58.2%)</b>	<b>94(41.8%)</b>	225	61.8
		Expected Count	<b>116.2(51.6%)</b>	<b>108.8(48.4%)</b>	225.0	61.8
	Town	Observed Count	<b>26(44.8%)</b>	<b>32(55.2%)</b>	58	15.9
		Expected Count	<b>30.0(51.7%)</b>	<b>28.0(48.3%)</b>	58.0	15.9
	Village	Observed Count	<b>31(38.3%)</b>	<b>50(61.7%)</b>	81	22.3
		Expected Count	<b>41.8(51.6%)</b>	<b>39.2(48.4%)</b>	81.0	22.3
Total		Observed Count	<b>188(51.6%)</b>	<b>176(48.4%)</b>	364	100
		Expected Count	<b>188.0(51.6%)</b>	<b>176.0(48.4%)</b>	364.0	100.0

**Table 8.** Relationship between Location of respondents and Info sources that satisfy their needs - Univ Library

		Info sources satisfying needs - Internet				
			Yes	No	Total	% of Total
Location	City	Observed Count	<b>142(63.1%)</b>	<b>83(36.9%)</b>	225	61.8
		Expected Count	<b>129.2(57.4%)</b>	<b>95.8(42.6%)</b>	225.0	61.8
	Town	Observed Count	<b>31(53.4%)</b>	<b>27(43.4%)</b>	58	15.9
		Expected Count	<b>33.3(57.4%)</b>	<b>24.7(42.6%)</b>	58.0	15.9
	Village	Observed Count	<b>36(44.4%)</b>	<b>45(55.6%)</b>	81	22.3
		Expected Count	<b>46.5(57.4%)</b>	<b>34.5(42.6%)</b>	81.0	22.3
Total		Observed Count	<b>209(57.4%)</b>	<b>155(42.6%)</b>	364	100
		Expected Count	<b>209.0(57.4%)</b>	<b>155.0(42.6%)</b>	364.0	100.0

**Table 9.** Relationship between Location of respondents and Info sources that satisfy their needs - Internet

In order to determine the extent to which the information needs of distance learners are met, a question was raised for them to indicate whether all, most, some or none of their information needs were met by the resources available to them. Unfortunately, only 17 respondents (4.7%) indicated that *all* their information needs were met. Only about one third of the respondents 121 representing 33.2% indicated that *most* of their information needs were met. Majority of them 59.1% (n = 215) said only *some* of their information needs were met, while 11 (3.0%) said *none* of their information needs were met. The result of a cross-tabulation with location of respondents reveals  $X^2 = 24.055$ :  $p < 0.05$ . With the established result, the position is that the information needs of the distance learners in Botswana are significantly unmet.

The third objective of the study aimed at exploring the information resources and services available to distance learners in Botswana. Thus the third research question “*What information resources and services are available to distance learners in Botswana?*” was raised to address the objective. In order to elicit information and respond to the issue, some questions were put across to the respondents. First, they were asked their preferred information format from three options of *print*, *electronic* and *audio visual* that were presented to them. The result showed that majority of them 216 (59.3%) would prefer print format, 123 respondents (33.7%) preferred electronic and 24 (6.6%) audio-visual. The findings here would hopefully shed light on the information format the distance learners desired. Table 10 shows the significance level of  $X^2$  value was 0.021 which is less than 0.05. It then means that the distance learners in Botswana significantly have preferred information format from the three available choices (print, electronic and Audio-visual formats).

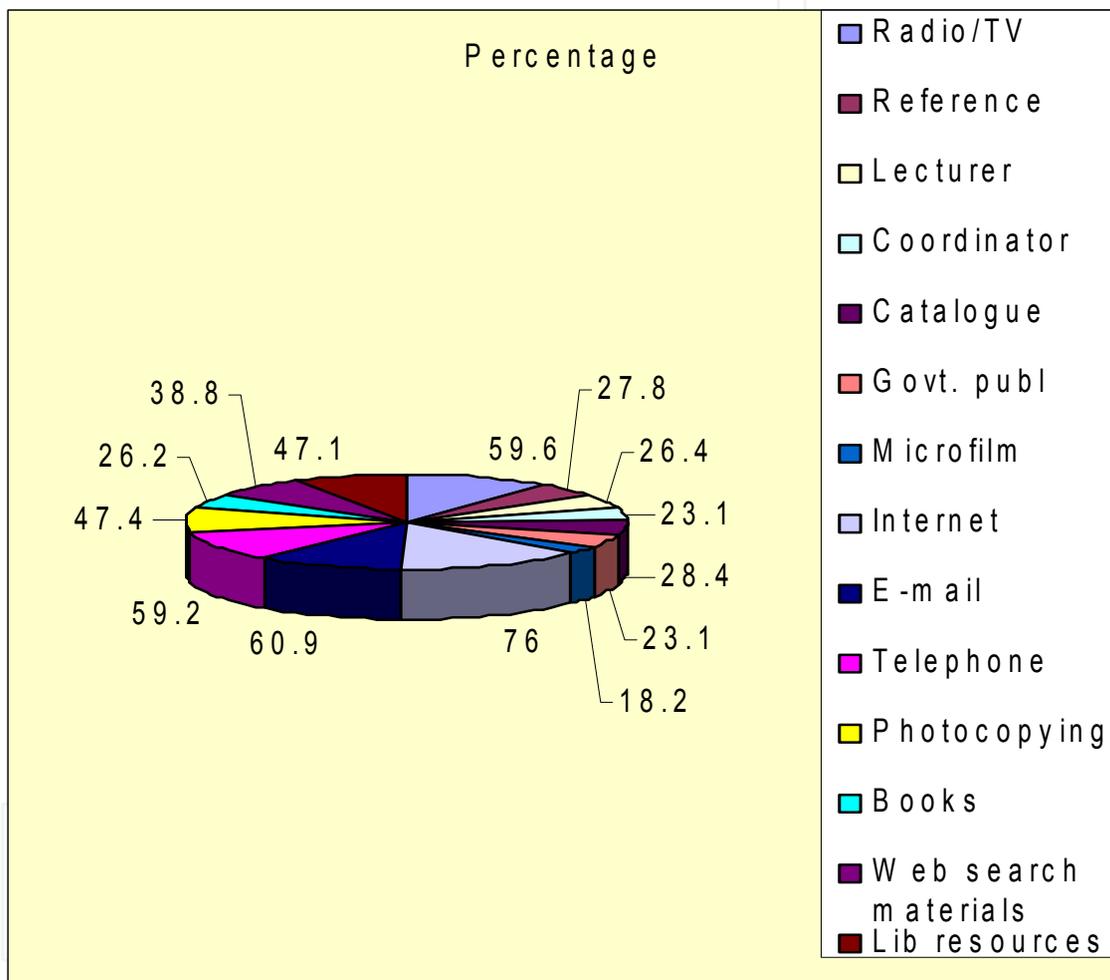
		Most Preferred info format			Total	Location	
		Print	Electronic	Audio Visual		$X^2$	Sig.
Location	City	129	80	15	224	11.610	.021
		59.7%	65.0%	62.5%	61.7%		
	Town	27	26	5	58		
		12.5%	21.1%	20.8%	16.0%		
	Village	60	17	4	81		
		27.8%	13.8%	16.7%	22.3%		
Total		216	123	24	363		

$p < 0.05$

**Table 10.** Location and Most Preferred information format

Second, the respondents were asked to authenticate the available information resources in their location from the list made available to them. In the event that the list was not exhaustive, provision was made for them to add to the list. From all indications, the majority of the respondents (76%) indicated that the Internet was available in their locations. Apart from the Internet, only 3 other information resources were regrettably said to be available by half or more of the total respondents. These include email (60.9%), radio/television (59.6%);

telephone (59.2%); In a descending order, other resources said to be available to respondents in their locations include photocopying (47.4%); Library resources (47.1%); Web search materials (38.8%); catalogue (28.4%); Reference (27.8%) and Lecturer (26.4%). The remaining resources are as shown in Figure 5 below. In addition, 35 other respondents indicated 'other' resources available in their locations. Such resources comprise the libraries of some institutions ranging from BIAC, Bank of Botswana, British Council, and Company to Hospital Libraries. Other libraries that are said to be available include IDM, BNPC, IHS and UNDP Libraries, Maun and other Technical College libraries, MANCOSA online library, as well as 'office' and village libraries.



**Figure 5.** Available Resources at Locations

The relationships between location and each of the major information resources available to the respondents were cross-tabulated and Chi-square tests were performed on the cross-tabulations. Table 11 shows that location was significantly related to a few of available information resources including the: lecturer ( $X^2 = 6.752$ ,  $df = 2$ ,  $p < .05$ ); Course Coordinator ( $X^2 = 6.746$ ,  $df = 2$ ,  $p < .05$ ); Government Publications ( $X^2 = 13.697$ ,  $df = 2$ ,  $p < .05$ ); Internet ( $X^2 = 19.885$ ,  $df = 2$ ,  $p < .05$ ); Email ( $X^2 = 14.718$ ,  $df = 2$ ,  $p < .05$ ) and Library resources ( $X^2 = 15.512$ ,  $df = 1$ ,  $p < .05$ ).

Information Resources	Chi-square	Df	Asymp. Sig. (2-sided)	Remark
Radio/Television	.170	2	.919	Not significant
Reference	.858	2	.651	Not significant
Lecturer	6.752	2	.034	Significant
Course Coordinators	6.746	2	.034	Significant
Online catalogue	8.812	6	.184	Not Significant
Government publications	13.697	4	.008	Significant
Microfiche/microfilm	2.956	2	.228	Not significant
Internet	19.885	2	.000	Significant
Email	14.718	2	.001	Significant
Telephone	3.448	4	.486	Not significant
Photocopying	3.068	2	.216	Not significant
Check out (book) materials	3.069	2	.216	Not significant
Web search materials	7.891	2	.019	Significant
Library resources	15.512	2	.000	Significant

**Table 11.** Relationship between Location and available information resources

Table 12 to Table 18 below reveal the expected and observed counts in the cross-tabulation of location and the available information resources as lecturer, course coordinator, Government publications, Internet, email, web search materials and library resources.

		Resources available - Lecturer				
		Yes	No	Total	% of Total	
Location	City	Observed Count	<b>70(31.1%)</b>	<b>155(68.9%)</b>	225	61.8
		Expected Count	<b>59.5(26.4%)</b>	<b>165.5(73.6%)</b>	225.0	61.8
	Town	Observed Count	<b>10(17.2%)</b>	<b>48(82.8%)</b>	58	15.9
		Expected Count	<b>15.3(26.4%)</b>	<b>42.7(73.6%)</b>	58.0	15.9
	Village	Observed Count	<b>16(20%)</b>	<b>64(80%)</b>	80	22.0
		Expected Count	<b>21.2(26.5%)</b>	<b>58.8(73.5%)</b>	80.0	22.0
Total		Observed Count	<b>96(26.4%)</b>	<b>267(73.6%)</b>	363	100
		Expected Count	<b>96.0(26.4%)</b>	<b>267.0(73.6%)</b>	363.0	100.0

**Table 12.** Location and Resources available (Lecturer)

		Resources available - Course coordinator				
			Yes	No	Total	% of Total
Location	City	Observed Count	62(27.6%)	163(72.4%)	225	61.8
		Expected Count	52.1(23.2%)	172.9(76.8%)	225.0	61.8
	Town	Observed Count	8(13.8%)	50(86.2%)	58	15.9
		Expected Count	13.4(23.1%)	44.6(76.9%)	58.0	15.9
	Village	Observed Count	14(17.5%)	66(82.5%)	80	22.0
		Expected Count	18.5(23.1%)	61.5(76.9%)	80.0	22.0
Total		Observed Count	84(23.1%)	279(76.9%)	363	100
		Expected Count	84.0(23.1%)	279.0(76.9%)	363.0	100.0

**Table 13.** Location and Resources available (Course coordinator)

		Resources available - Government publications				
			Yes	No	Total	% of Total
Location	City	Observed Count	61(27.1%)	164(72.9%)	225	61.8
		Expected Count	52.1(23.4%)	172.3(76.6%)	225.0	61.8
	Town	Observed Count	14(24.1%)	43(75.9%)	58	15.9
		Expected Count	13.4(23.1%)	44.4(76.9%)	58.0	15.9
	Village	Observed Count	9(11.3%)	71(88.8%)	80	22
		Expected Count	18.5(23.1%)	61.3(76.9%)	80.0	22.0
Total		Observed Count	84(23.1%)	278(76.9%)	363	100
		Expected Count	84.0(23.1%)	278.0(76.9%)	363.0	100.0

**Table 14.** Location and Resources available (Government publications)

		Resources available - Internet				
			Yes	No	Total	% of Total
Location	City	Observed Count	185(83.1%)	40(16.9%)	225	61.8
		Expected Count	171.1(76%)	53.9(24%)	225.0	61.8
	Town	Observed Count	45(77.6%)	13(22.4%)	58	15.9
		Expected Count	44.1(76%)	13.9(24%)	58.0	15.9
	Village	Observed Count	46(57.5%)	34(42.5%)	80	22
		Expected Count	60.8(76%)	19.2(24%)	80.0	22.0
Total		Observed Count	276(76%)	87(24%)	363	100
		Expected Count	276.0(76%)	87.0(24%)	363.0	100.0

**Table 15.** Location and Resources available (Internet)

		Resources available – E-mail				
			Yes	No	Total	% of Total
Location	City	Observed Count	<b>150(66.7%)</b>	<b>75(33.3%)</b>	225	61.8
		Expected Count	<b>137.0(60.9%)</b>	<b>88.0(39.1%)</b>	225.0	61.8
	Town	Observed Count	<b>37(63.8%)</b>	<b>21(36.2%)</b>	58	15.9
		Expected Count	<b>35.3(60.9%)</b>	<b>22.7(39.1%)</b>	58.0	15.9
	Village	Observed Count	<b>34(42.5%)</b>	<b>46(57.5%)</b>	80	22
		Expected Count	<b>48.7(60.9%)</b>	<b>31.3(39.1%)</b>	80.0	22.0
Total		Observed Count	<b>221(60.9%)</b>	<b>142(39.1%)</b>	363	100
		Expected Count	<b>221.0(60.9%)</b>	<b>142.0(39.1%)</b>	363.0	100.0

**Table 16.** Location and Resources available (E-mail)

		Resources available - Web search materials				
			Yes	No	Total	% of Total
Location	City	Count	<b>100(44.4%)</b>	<b>125(55.6%)</b>	225	61.8
		Expected Count	<b>87.4(38.8%)</b>	<b>137.6(61.2%)</b>	225.0	61.8
	Town	Count	<b>18(31%)</b>	<b>40(69%)</b>	58	15.9
		Expected Count	<b>22.5(38.8%)</b>	<b>35.5(61.2%)</b>	58.0	15.9
	Village	Count	<b>23(28.8%)</b>	<b>57(71.2%)</b>	80	22
		Expected Count	<b>31.1(38.9%)</b>	<b>48.9(61.1%)</b>	80.0	22.0
Total		Count	<b>141(38.8%)</b>	<b>222(61.2%)</b>	363	100
		Expected Count	<b>141.0(38.8%)</b>	<b>222.0(61.2%)</b>	363.0	100.0

**Table 17.** Location and Resources available (Web search materials)

		Resources available - Library resources				
			Yes	No	Total	% of Total
Location	City	Observed Count	<b>122(54.2%)</b>	<b>103(45.8%)</b>	225	61.8
		Expected Count	<b>106.0(47.1%)</b>	<b>119.0(52.9%)</b>	225.0	61.8
	Town	Observed Count	<b>26(44.8%)</b>	<b>32(55.2%)</b>	58	15.9
		Expected Count	<b>27.3(47.1%)</b>	<b>30.7(52.9%)</b>	58.0	15.9
	Village	Observed Count	<b>23(28.8%)</b>	<b>57(71.2%)</b>	80	22
		Expected Count	<b>37.7(47.1%)</b>	<b>42.3(52.9%)</b>	80.0	22.0
Total		Observed Count	<b>171(47.1%)</b>	<b>192(52.9%)</b>	363	100
		Expected Count	<b>171.0(47.1%)</b>	<b>192.0(52.9%)</b>	363.0	100.0

**Table 18.** Location and Resources available (Library resources)

The expected counts in the cells of the Tables are based on the assumption that the row (Location) and the column (Resources available) variables are independent of one another (i.e. there is no relationships between them). Comparison of the observed with the expected counts shows that the observed values are significantly different from the expected values, and that in virtually all of them more respondents than expected said 'yes' they had the resources in the city; while in virtually all of them too, less respondents than expected said 'yes' in the village. In the town less respondents than expected also said 'yes' in four of the seven variables. The conclusion, therefore, is that there is a significant relationship between location and available information resources. The finding seems to corroborate the fact that more information resources are available in the city than in the town or village and that the more rural a location is the less the chances of having adequate information resources in Botswana.

According to the literature, one of the ways the distance learners can access information resources and services is through information and communication technology. In order to address the fourth objective of the study a research question "*To what extent do distance learners use ICTs in meeting their information needs in Botswana?*" was raised. This also culminated in a series of questions addressed to the respondents. First, they were asked if they had access to computer with Internet facilities. A total of 287 (78.8 percent) respondents indicated that they had access to computer with Internet facilities, whilst the remaining 77 respondents (21.2 percent) indicated they had no access to the Internet facilities. The relationships between location of respondents and access to computer with Internet facilities were cross-tabulated and Chi-square tests performed on the cross-tabulations. The test shows that location was significantly related to Access to computer with Internet facilities ( $X^2 = 21.681$ ,  $df = 2$ ,  $p < .05$ ).

Table 18 shows the expected and observed counts in the cross-tabulation of location and the Internet accessibility by distance learners. Comparison of the observed with the expected counts shows that the observed values are significantly different from the expected values, and that more respondents in the city and town than expected said 'yes' to having access to the computer with Internet facilities, while less respondents than expected said 'yes' in the village. Therefore the conclusion is that there is a significant relationship between location and access to the Internet. A number of subsequent tests also confirmed the prevalence of the Internet facilities accessibility in the city and town as against what obtains in the village. The findings obviously substantiate the fact that the village is shortchanged when the use and accessibility of information and communication technology in Botswana is considered. This consequently affects the learners located in the rural areas. It therefore implies that adequate arrangement has to be made on the provision of ICT facilities like the Internet in some strategic locations including the villages if distance learners working or living in such locations are to maximally benefit from ICTs.

A follow up question attempted to establish where respondents would have access to the Internet if the response was in the affirmative. Those that indicated they had access to the Internet at work and on their own computer made up to 45.6%, on their own machine at home (22.5%); at work on shared machine (20.9%); and at home on shared machine (6.3%). In addition to the above, 28 other respondents specified other Internet access points they used. These include: Internet café (6.0%); Friend's office (0.3%) and Other Libraries (1.6%).

		Access to computer with internet facilities				
			Yes	No	Total	% of Total
Location	City	Observed Count	187(83.1%)	38(16.9%)	225	61.8
		Expected Count	177.4(78.8%)	47.6(21.2%)	225.0	61.8
	Town	Observed Count	51(87.9%)	7(12.1%)	58	15.9
		Expected Count	45.7(79.8%)	12.3(21.2%)	58.0	15.9
	Village	Observed Count	49(60.5%)	32(39.5%)	81	22.3
		Expected Count	63.9(78.9%)	17.1(21.1%)	81.0	22.3
Total		Observed Count	287(78.8%)	77(21.2%)	364	100
		Expected Count	287.0(78.8%)	77.0(21.2%)	364.0	100.0

**Table 19.** Location and Access to computer with Internet facilities

Another objective of the study, which was the fifth, aimed at identifying the challenges faced by distance learners in Botswana. In examining the question, a number of probing issues were raised with the respondents. These include the distance they had to travel before getting to the nearest University Library or Information Centre, the source of light used where they lived, their fears and the barriers that affect their use of information sources, among others.

With respect to the distance they had to travel before getting to the nearest University Library or Information Centre to meet their information needs, 62.9% of them indicated they travelled between 1-10 kms, 12.9% lived in a distance of 11-30 kms, 4.1% would need to cover a distance that ranged from 301 to 500 kms and another 3.8% travelled a distance of 501 kilometres and above to get to the nearest university library and information centres to meet their information needs. Since distance education is a self-directed learning and not face-to-face of the conventional system, it was considered necessary to probe into the source of light used by respondents in their homes and invariably to study as they self-direct their studies. The type of light used might have some impact on their accessibility to and use of information resources and services for their studies. The findings to this query indicate that majority of them (97.5%) used permanent electricity supply; only 3.6% claimed they used cylinder gas; 2.2% used battery power and 1.9% specified using candles and/or paraffin lamps. Only 1 respondent ticked 'other' as source of light without clearly specifying it. The relationships between location and each of the sources of light used (electricity, battery power, cylinder gas and candles/paraffin lamps) were cross-tabulated and Chi-square tests performed. Table 19 shows that location was significantly related to electricity ( $X^2 = 10.862$ ,  $df = 2$ ,  $p < .05$ ) as respondents source of light; and battery power ( $X^2 = 13.324$ ,  $df = 2$ ,  $p < .05$ ) as a source of light. No significant difference was found between location and other two sources of light.

Tables 20 and 21 show the expected and observed counts in the cross-tabulation of location and the electricity and battery power as sources of light. Comparison of the observed with

the expected counts shows that the observed values are significantly different from the expected values. Table 20 shows that in the city and town more respondents than expected said 'yes' to using electricity as a source of light in their homes, whereas in the village, less respondents than expected said 'yes'. The conclusion, therefore, is that there is a significant relationship between location and the use of electricity as a source of light. The finding clearly establishes the fact that people in the city and town enjoy the electricity utility than people in the village.

Sources of Light	Chi-square	Df	Assym. Sig. (2-sided)	Remark
Permanent electricity	10.862	2	.004	Significant
Battery Power	13.324	2	.001	Significant
Cylinder Gas	2.305	2	.316	Not significant
Candle/paraffin lamps	2.524	2	.283	Not significant

**Table 20.** Relationship between Location and different sources of light used by respondents

		Source of light - Permanent electricity supply				
		Yes	No	Total	% of Total	
Location	City	Count	222(98.7%)	3(1.3%)	225	61.8
		Expected Count	219.4(97.5%)	5.6(2.5%)	225.0	61.8
	Town	Count	58(100%)	0(0.0%)	58	15.9
		Expected Count	56.6(97.6%)	1.4(2.4%)	58.0	15.9
	Village	Count	75(92.6%)	6(7.4%)	81	22.3
		Expected Count	79.0(97.5%)	2.0(2.5%)	81.0	22.3
Total		Count	355(97.5%)	9(2.5%)	364	100
		Expected Count	355.0(97.5%)	9.0(2.5%)	364.0	100.0

**Table 21.** Location and Source of light (Permanent electricity supply)

Table 21 also shows that in the city and town less respondents than expected said 'yes' to using Battery power as a source of light in their homes, whereas in the village, more respondents than expected said 'yes'. The conclusion, therefore, is that there is a significant relationship between location and the use of battery power as a source of light. The finding clearly gives the confirmation that people in the village are more likely to use battery power as a source of light than those in the city and town.

		Source of light - Battery power				
		Yes	No	Total	% of Total	
Location	City	Observed Count	2(0.9%)	223(99.1%)	225	61.8
		Expected Count	4.9(2.2%)	220.1(97.8%)	225.0	61.8
	Town	Observed Count	0(0.0%)	58(100%)	58	15.9
		Expected Count	1.3(2.2%)	56.7(97.8%)	58.0	15.9
	Village	Observed Count	6(7.4%)	75(92.6%)	81	22.3
		Expected Count	1.8(2.2%)	79.2(97.8%)	81.0	22.3
Total		Observed Count	8(2.2%)	356(97.8%)	364	100
		Expected Count	8.0(2.2%)	356.0(97.8%)	364.0	100.0

**Table 22.** Location and Source of light (Battery power)

Attention was also shifted to what could be the fears of distance learners with regard to their distance education programme. A number of likely options were considered as possible challenges. These include: how to get materials to write their assignments, read for test and examinations, how to get time to study, how best to plan their time and how to get suitable/conducive place to study, among others. How to get *time* to study constituted the greatest challenge or fear of distance learners as 185 (50.8%) of them indicated. How to get *materials* to write their assignments, read for test and examinations was another fear indicated by 184 (50.5%) respondents. Other factors include how best to plan their time (*planning*) with 176 (48.4%) respondents; how to cope with *examinations* 107 (29.4%); and how to get a suitable/conducive place to study - 81 (22.3%) respondents.

The relationships between location and each of the major areas of fear of the respondents were cross-tabulated and Chi-square tests were performed on the cross-tabulations. Table 22 shows that location was significantly related only to the fear of how they would get materials to write their assignments, read for test and examinations ( $X^2 = 12.697$ ,  $df = 2$ ,  $p < .05$ ). No significant difference was found between the location and other possible areas of fear.

Possible areas of fear	Chi-square	Df	Assym. Sig. (2-sided)	Remark
Getting materials	12.697	2	.002	Significant
Getting time to study	.549	2	.760	Not significant
Planning their time	.490	2	.783	Not significant
Getting suitable study place	3.632	2	.163	Not significant
Coping with Examinations	.425	2	.809	Not significant

**Table 23.** Relationship between Location and different possible areas of fear of distance learners

Table 23 shows the expected and observed counts in the cross-tabulation of location and the fear of getting materials to write assignments, read for tests and examination. Comparison of the observed with the expected counts shows that the observed values are significantly different from the expected values, and that in the city and town less respondents than expected said 'yes' to having fear of getting materials to write their assignments, read for test and exams, whereas in the village more respondents than expected said 'yes'. The conclusion, therefore, is that there is a significant relationship between location and the fear of getting material. The finding seems to confirm the dearth of information resources and services in the village as compared to what obtains in the city and town.

		What are your fears? - Getting materials				
			Yes	No	Total	% of Total
Location	City	Observed Count	<b>108(48%)</b>	<b>117(52%)</b>	225	61.8
		Expected Count	<b>113.7(50.5%)</b>	<b>111.3(49.5%)</b>	225.0	61.8
	Town	Observed Count	<b>22(37.9%)</b>	<b>36(62.1%)</b>	58	15.9
		Expected Count	<b>29.3(50.5%)</b>	<b>28.7(49.5%)</b>	58.0	15.9
	Village	Observed Count	<b>54(66.7%)</b>	<b>27(33.3%)</b>	81	22.3
		Expected Count	<b>40.9(50.5%)</b>	<b>40.1(49.5%)</b>	81.0	22.3
Total		Observed Count	<b>184(50.5%)</b>	<b>180(49.5%)</b>	364	100
		Expected Count	<b>184.0(50.5%)</b>	<b>180.0(49.5%)</b>	364.0	100.0

**Table 24.** Location \* What are your fears? (Getting materials)

## 5. Discussion

The results have shown that the information needs of distance learners in Botswana are specifically in tandem with the information needs espoused by the Commonwealth of Learning in reference [6] as against the ideas discussed in reference[3], [4], and [5] of the literature reviewed. It is observed that with 75 percent, distance learners will first go for 'subjects relating to the students course of study'. Acquisition of greater skill in the use of information and communication technologies e.g. the Internet, was the second choice with 60 percent. The results show that distance learners would not give high premium to the need for specialized information or even access to a help line in as much as they could have materials in subjects/courses of study and how to use the ICT. The influence of location however seemed conspicuous when it was established that location was significantly related to information needs in the areas of "writing tests, examinations and doing residential sessions" ( $X^2 = 11.026$ ,  $df = 2$ ,  $p < .05$ ) and "making information-based decisions" ( $X^2 = 6.867$ ,  $df = 2$ ,  $p < .05$ ). The result seems to suggest that respondents in the rural areas are somewhat disadvantaged about information on tests, examinations and residential sessions than respondents in urban areas who have better access to information on the need area. This also seems to confirm the existence of information inadequacy in the rural areas as against what obtains in the urban areas where there is preponderance of information resources and

services. This is further confirmed in respect of more respondents in urban areas affirming 'yes' to information-based decisions and less respondents than expected in the village would say 'yes'. This corroborates the locational factor of easy accessibility to information by the students in urban centres and the reason they can take information based decisions than those in rural locations

With respect to the information seeking behavior of the learners, the results revealed some variation with what obtained in the literature reviewed, especially in Western Colorado and San Jose State Universities. In these two institutions, there was evidence of reliance of distance learners on public libraries. Majority of the survey participants borrowed materials from local public libraries. Just like in the US, it can be said that in Botswana, public libraries are also more numerous and geographically accessible than academic libraries. The major area of departure is that the public libraries in Botswana hardly keep stock of tertiary level materials. Hence majority (341) of distance learners constituting 93.7% showed that they used their modules and study packages. The use of the Internet came a distant second with 238 respondents (65.4%). Just a little over a quarter (27.5%) of respondents indicated public libraries satisfied them when further asked how they meet and satisfy their information needs. The result revealed in Colorado that more than half of the students did not use the main campus (distance education provider) library. In Botswana, the results showed that a little above half (51.6%) of the respondents indicated they used the main campus library. In another study at the University of Botswana cited in reference [19] only about a quarter of respondents used the University Library. The literature confirmed that majority of distance learners at the University of Maryland University College (UMUC) prefer using online resources to physical library buildings and collections, only (28.8%) found online databases/sources satisfying in Botswana. This is probably due to lack of adequate orientation on how to use the facilities. On the contrary, it was confirmed in the literature that the African Virtual University (AVU) Library created a digital library consisting of e-journals, e-books and online archives to facilitate access to worldwide resources by the students. Whilst the study found that with 57.4% of respondents, Internet was the information source that satisfied majority of distance learners, it is regrettable to note that 'colleagues' are found as a satisfying information source by as high as 37.1 percent respondents. This is similar to the findings at the Institute of Extra-Mural Studies, Maseru in Lesotho - another African institution, where some researchers in [17] reported that living long distances from their institution, among others, has made distance learners depend on easily available sources of information such as colleagues, personal collections, co-workers and family members, which may not necessarily be the best sources of information to meet their needs. The results also revealed a significant relationship between location and use of the University Library ( $X^2 = 10.778$ ,  $df = 2$ ,  $p < .05$ ) and the Internet ( $X^2 = 8.933$ ,  $df = 2$ ,  $p < .05$ ) as satisfying information sources.

In exploring the information resources and services available to distance learners in Botswana, the result showed that majority of them 216 (59.3%) would prefer print format, as against (33.7%) who preferred electronic and 6.6% who preferred audio-visual. The adducible reason for the preference could be that distance learners had been using print

format all their lives. Besides, the application of the other two formats (electronic and audio-visual) involves the use of electricity which may not be significantly available in the homes of some of the students, particularly as some of them live in villages and settlements where electricity supply is not reliable. While authenticating the available information resources in their location majority of the respondents (76%) indicated that the Internet was available in their locations. Apart from the Internet, only 3 other information resources were regrettably said to be available by half or more of the total respondents. These include email (60.9%), radio/television (59.6%); telephone (59.2%). The use of the Internet and email seems to confirm the statement of the author in reference [9] that WWW or the Internet is an asset and a valuable tool in an information environment. It also tallies with a survey on distance learners at the University of Maryland University College (UMUC) in [11], that students prefer using online resources. The test on the relationships between location of respondents and access to computer with Internet facilities conducted shows that location was significantly related to Access to computer with Internet facilities ( $X^2 = 21.681$ ,  $df = 2$ ,  $p < .05$ ). It is confirmed that more respondents in the city and town than expected said 'yes' to having access to the computer with Internet facilities, while less respondents than expected said 'yes' in the village.

## 6. Conclusion

The operation of open and distance education has ensured that learning can no longer be restricted to any particular place or time. As such, learners undertake their studies with institutions from various remote locations all over the world to the extent that geographical barriers between and among countries seem to have no relevance in the system. This manifests not only in the established institutions of higher learning diversifying to accommodate distance programmes, but also in cross-border education where students register for courses or programmes produced and maintained in a different country from where they live. But then it has also been accentuated that library and information service is of great value in educational and research institutions as well as other environments where learning takes place. The palpability of this is found in the pride of place given to information resources and services in institutions of higher learning. Unfortunately, for reasons of their remote locations from their institutions, distance learners hardly enjoy the information resources and services located in their institutions. This study has established that distance learners, like their conventional face-to-face counterparts, have information needs and that they exploit various means to meet their needs. The learners' information need areas are seen to be varied, with information on subjects relating to their courses of study and the use of information and communication technologies, emerging as their greatest need areas. But then, there are other notable information needs areas such as: the development of information searching skills and information on tests, examinations and residential sessions/periods. It is needless to say that the distance learners' quest for information on the use and application of ICTs and the development of information searching skills is an admission of the existence of skills gap that could enable them to function effectively and efficiently. In other words, with the acquisitions of the skills, they are better able to function and bridge the existing gap between them and their institutions, in relation to their studies.

The reality of the disadvantage suffered by the rural-based, as well as the opportunities and, or advantages available to the urban-based distance learners have been demonstrated in the study. The existence of the information-rich and information-poor, technology-rich and technology-poor environments in which distance learners live and may define the types of decision the distance learners make and information resources and services they use. In other words, the locational characteristics of distance learners tend to affect the type of information resources available, with metropolitan-based learners being more advantaged than the rural-located learners. While almost all the required information resources and services were available and with some effort, accessible to the urban-based learners, the semi-urban or rural-based learners were not found within the cutting edge.

Among others, the study findings indicate that: more urban-based distance learners and less rural based (village) respondents than expected affirmed that they make information-based decisions; the modules/study package, the Internet, and colleagues were the three major information sources used by distance learners to prepare their assignment, test or examination; location was significantly related to the use of the Internet as an information source - more urban-based and less rural-dwelling respondents than expected used the Internet; the information needs of the distance learners in Botswana are significantly unmet; there was a significant relationship between location and available information resources; there was no evidence to suggest that ICTs such as toll-free telephone line, cell-phone, help desk, facsimile, telephone answering machine etc were available for use of distance learners; distance learners would like to use fast resources like the Internet but their location had some significant impact on their accessibility to the facility – hence, the traditional library types of services are predominantly still being used in Botswana; two major issues i.e. how to get time to study and how to get materials to write their assignments, read for test and examinations, constituted the greatest fear and challenge to distance learners in Botswana; more than one third of distance learners lived outside the cities and in scattered distances that ranged from 11 – 500+ kilometers; there was dearth of information resources and services in the village as compared to what obtains in the city and town; location was significantly related to isolation and lack of well equipped library as barriers to using information sources with more respondents in the village and less in the city and town than expected indicated the above two variables were barriers to them.

In the light of the above, the following recommendations are offered:

- Distance teaching institutions should take into cognizance the spread of their students in the country and create opportunities for them to access information resources and/or services
- Establishing study centres in a number of strategic places across the country and equipping the centres/offices with appropriate information materials and other necessary facilities including books (such as reference and recommended materials), relevant journals, and computers with Internet connection.

- Collaborative partnership could be worked out between and among institutions running distance degree programmes, in such a way that resources could be pooled together to make the information environment of their learners rich or richer.
- Collaborative partnership can also be worked out by distance teaching institutions with some institutions like public libraries, secondary schools, Technical Colleges and Education Centres, etc. across the country.
- Computing and information literacy skills training should be given priority to distance learners.
- Use of ICT gadgets like cellular phone and its functionalities; Instant Messaging (IM) and Live Chat with a Librarian; Emailing system; Electronic Alerts and Electronic Bulletin; e-counseling and mentoring should be encouraged

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