INTEGRATING DIGITAL LIBRARIES INTO DISTANCE EDUCATION: A REVIEW OF MODELS, ROLES, AND STRATEGIES

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Received: 31/05/2018 **Accepted:** 02/11/2018

ABSTRACT

This study examines ongoing efforts by academic libraries to integrate digital resources into distance education courses. The study adopts a conceptual approach and it is thematically focused on the concepts of distance education and digital libraries; academic library models in distance education; the role of digital libraries in distance education; and strategies for integrating digital libraries into distance education. Through a systematic literature review and thematic analysis of extant literature, the paper concludes that academic libraries must pragmatically integrate digital libraries into the distance education curriculum by highlighting the role of digital libraries in the academic community and her processes. In this way, digital libraries may not be perceived as just content providers, but as significant agents of transformative learning.

Keywords: Digital libraries, distance learning library services, integration, academic libraries.

INTRODUCTION

Learning at a distance is no new phenomenon (Perraton, 2010:5-6). For generations writing has been a major source of information across the barriers of time and space. Learning at a distance received a new impetus with the establishment of single mode institutions in the 1950's such as University of South Africa, the Open University of the United Kingdom; the Fernuniversitat of then-West Germany; the open universities of Holland, Spain, Portugal. Costa Rica, Colombia; Sukhothai Thammathirat Open University in Thailand; IGNOU of India; Universitas Terbuka of Indonesia; and Universitas Nacional Abierta of Venezuela whose stock in trade was largely to provide correspondence courses through self-instructional manuals (Croft, 1992). More recently, however, distance education has taken the form of a combination of the print and electronic media (Burns, 2011; Perraton, 2010). Distance education has embraced the additional element of providing limited face-to-face interaction between course instructors and learners at

appointed time intervals. The result of these changes is that today educational delivery and, particularly distance education, has become dynamic and multi-dimensional.

The emergence of digital libraries in recent times has resulted in significant changes to the role of the library while extending the reach of the library beyond its physical walls (Ilesanmi, 2013). Furthermore, these changes can be attributed to the rising need for user-centredness in education (Mbatha, 2013). In supporting their institutions' mission, academic libraries have taken advantage of developments in ICT to implement digital library services in their quest to fulfil the user-centred information needs of distance learners.

This study examines ongoing efforts by academic libraries to integrate digital resources into distance education courses. The study takes the form of a literature review and it is organised into several sections. The introductory section provides an overview of the context of the study. The second section provides **brief** background information on digital libraries while the third section explores the concept of distance education. The fourth section provides insights into academic library models in distance education. The fifth section addresses the role of digital libraries in distance education, while the last section describes strategies being employed to integrate digital libraries into distance education.

WHAT ARE DIGITAL LIBRARIES?

Digital libraries have a considerable positive impact on education, as it enables sharing of learning resources in support of not only distance education, but also on-campus and independent discovery-based learning (Fox, Gonclaves & Kipp, 2002). The growth in the development of digital libraries is attributable to an increasing realisation of the important role of lifelong learning and the move towards student-centredness. This rising phenomenon has resulted in the recognition that digital libraries are crucial in providing access to much needed digital information resources (Tedd & Large, 2005:14). Thus, digital libraries have been defined as:

> *"Organisations that provide the resources, including the specialised staff, to select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of and ensure the persistence over time of collections of digital works so that they are readily and economically available for use by a defined community or set of communities"* (Digital Libraries Federation, 2002).

Digital libraries offer enormous opportunities to developing countries to participate in global affairs and raise the standard of living of their people. Witten, Bainbridge and Nichols (2006) note that digital libraries are vital in developing countries. This is because digital libraries make it possible for many people to access one copy of an electronic resources, such as a book or article, in comparison to the relatively high cost of many printed copies of the same resource. An important goal of digital libraries is to support educational goals, an effort which has been recognised as an important issue by researchers (Shih, Hwang, Chu & Chuang, 2011). Witten et al. (2006) outline three distinct roles played by digital libraries in education.

- As a learning platform (student experience);
- As an authoring space (also in support of student experience);
- As a teaching resource (course development).

Even though digital libraries can be viewed as another source of information, they can be considered appropriately as powerful resources that can provide new opportunities to engage students in inquiry-based learning (Shih et al., 2011). Digital libraries can support inquiry-based learning among distance learners by promoting access to resources that enable them to investigate authentic scientific questions using real data; help students develop a view of science as inquiry; and provide a common ground linking students with a community of professionals (Shih et al., 2011).

THE CONCEPT OF DISTANCE EDUCATION

Trends in contemporary education research suggests that distance education is a student-centred approach to education (Postle & Tyler, 2010:62). As conventional academic education is basically about teaching, learning and research, so is distance education. The implication of this perspective is that the major functions of full-time education is also present in distance education, except that these are mediated by distance, that is to say, these functions are achieved away from the traditional brick and wall campus of an institution. Keegan (1986:32) suggests that the term distance education can be analysed into two different terms, namely distance teaching and distance learning as these terms are half components of this process of education. Distance teaching is described as the process by which courses are developed for learners with the responsibility on the distance education provider. Conversely, the process of distance learning involves the act of learning from a distance, or the process as seen from the perspective of the distance student.

Other researchers do not necessarily view the importance of the distinction pointed out by Keegan as they see terms such as distance learning and distance education as interchangeable (Sarfo & Adentwi, 2011:113; Boadi & Letsolo, 2004). Cowan (1995:14) chooses the term "distance learning" and defines it as all educational situations in which teacher and learners are located in different sites, for most, if not all the time. Sarfo and Adentwi (2011:113) and Rowntree (1992:29) also use the term distance learning instead of distance education, and further describe it as all types of remote learning situations involving either an industrial or professional training that is experienced at some place away from the presence of the teacher and sometime after the lesson. These perspectives point to definitional problems. First of all, agreement on the use of a common terminology is not forthcoming. And next, there appears to be a lack of consensus on the meanings of distance education and this poses a challenge of identity (Garrison & Shale, 1987, cited in Peters & Keegan, 1994:11).

Holmberg (2005:1) is of the opinion that in spite of the worldwide adoption of distance education as a system of education to provide educational opportunities for all, there is yet no corresponding common ground about its characteristics. Holmberg (2005:2) emphasises the communication aspects of distance education by hinting at two forms of communication between the distance education provider and its students. These forms of communication are either:

- One-way traffic which occurs in the form of pre-produced course materials in the form of textual materials delivered by the distance education provider to students; or
- Two-way traffic, one that involves real-time communication between the distance education organising institution and students.

Holmberg's (2005:2) conception of distance education is one that involves various forms of education at all levels which are not under the continuous immediate supervision of teachers in a classroom situation in or on the same premises, but which nonetheless requires planning, guidance and tutorial organisation. It can therefore be elicited that Holmberg's definition involves two essential elements which are:

- the physical separation of teacher and learner; and
- the planning and support of an educational organisation.

The separation of teacher and learner is basic to all forms of distance education. This feature of isolation underlies the basic difference between distance education and other forms of conventional education. Perraton (2010:9) is, however, quick to point out that the isolation of both the teacher and learner is relative as distance education may be interspersed with some occasional elements of contact as this is necessary to maintain interest, promote dialogue and for teaching practice supervision. Furthermore, Danaher and Umar (2010:15) suggest that the separation between teacher and learner may be mediated by communication technologies. The purposes for using communication technologies in distance education are several.

According to Perraton (2010:9) communication technologies enable distribution of teaching materials; they ensure simulated two-way communication; they enhance the ability of students to communicate in and take part in e-learning; and they also provide access to open educational resources.

In respect of the peculiar features of distance education, Holmberg (2005:1) argues that what distinguishes distance education from other educational delivery modes is the organisation and alignment of learning materials to achieve positive learning outcomes of students through an educational institution. The implication of this is that in spite of the seeming autonomy of the distance learner from the teacher, there is a level of control built into the system through the provision of guidance and tutorials. Even though this element seems to suggest that the learner has independence from the distance learning institution, the learner is actually dependent on the ability or the responsiveness of the institution to make these materials available to the learner (Quality Assurance Agency, 1999). The purpose of making learning materials available to the learner in his or her location is to help the learner work at his or her location without burdening him or her with the necessity of always moving to his or her institution in the course of the studies. In proposing a definition for distance education, Peters (1973) analysed distance education from an industrial perspective and defines distance education as:

> *"A method of imparting knowledge, skills and attitudes which is rationalised by the application of division of labour and organisational principles as well as the extensive use of technical media especially for the purpose of reproducing high-quality teaching material which makes it possible to instruct great numbers of students at the same time wherever they live"* (Peters, 1973, cited in Keegan, 1986:37).

This definition points to the fact that distance education is an industrialised form of teaching. This definition has, however, been the subject of debate for its apparent disregard for smaller groups of students who nonetheless study by distance and, most importantly that the industrial perspective fails to acknowledge the actual educational relationship that exists between the learner and the teacher. In addition to elements identified in previous definitions such as the separation of teacher and learner and the possibility of two-way communication, Moore's definition (Moore, 1973, cited in Keegan, 1986:37) emphasises the moderating effect of technical media between the teacher and the learner. These technical media include print, electronic, mechanical or other devices. Burns (2011:8-9) opines that the combination of multiple communication media in distance education serves to counter balance the strengths and weaknesses of the individual media and to have a reinforcing effect on learning. For instance, a web-based distance education system may employ print, audio, video, multimedia, and broadcast elements. On the other hand, a largely print-based distance education model may make use of secondary technologies such as radio and audio (Burns, 2011:9). Nevertheless, the permanence of print can also balance the speed with which radio and television signals pass with time. It is clear that the face-to-face discussions with instructors make up for considerable dialogue and feedback that may not be possible with media technologies. In his attempt at providing a more inclusive definition of distance education, Keegan (1986:44) points out further distinguishing characteristics of distance education as follows:

- It is a teaching-learning interaction process marked by quasi-permanent separation of teacher and learner throughout the learning process;
- It is an educational arrangement with planning, the preparation of learning materials, and the provision of student support services being an essential component;
- It involves the utilisation of a multiple number of media of instruction such as print and audio-visual equipment like the radio, television, video and computers;
- It involves a two-way communication process in which instructors and learners engage in useful information exchanges via the multiple media mentioned above;

- It involves the quasi-permanent absence of a learning group throughout the duration of the course. This means that the learners do not usually study in a classroom group setting but mostly engage in self-instructional readings (or self tuition). They only have very limited face-to-face interaction among themselves and with their course instructors.

The foregoing definitions suggest that distance learners receive much of their tuition through correspondence courses instead of attending formal classes in a residential institution. Where distance education is used as a means of teacher education, arrangements may also be made for learners to occasionally meet their course instructors face-to-face in a classroom setting to engage in discussions and other exchanges on their course (UNESCO, 2002). Another approach to defining distance education is by distinguishing between the features of distance education from other forms of education. Some of the issues to consider in this effort are the following: determining where the principal educational decisions are made; finding out who is responsible for the learning content; deciding when and how the learning takes place; and finally, determining the point at which learning is considered satisfactory. In the event that these decisions are not made outside the classroom, then it is not distance education. On the other hand, if these decisions are made elsewhere and communication is by means of technology, the programme is considered distance education (UNESCO, 2002).

Other researchers in distance education also use the terms "Open Learning" and or "Open Education" in reference to distance education (UNESCO, 2002). The promotion of Open Education has its roots in the "University of the Air" of the United Kingdom which was later renamed the "Open University". According to Keegan, (1986:25) the terms Open Learning or Open Education must not be used in the administrative context as they rather suggest all types of educational processes that are characterised by the absence of any restrictions, exclusion or privileges of any sort. It also largely involves institutions with permissive administrations and can either be a conventional or distance education.

Despite the numerous definitions of distance education advanced by other researchers, the need to provide a working definition for the concept in this study cannot be understated. Distance education in this study is, therefore, defined as:

> *"An academic education obtained in a conventional educational system where tutors and learners are not in contact for most of the time and where communication and learner support services are provided through a variety of digital technologies."*

In this definition, Keegan (1986:35) claims that it (the definition) seeks to include or exclude some elements known in previous definitions. In the context of this study, however, the basic elements of separation of teacher and learner are applicable because distance education students are not required to be in the classroom most of the times, even though there are minimal cases of face-to-face interaction in the classroom; the active participation of the distance education institution is also applicable because it is the examining and certificate awarding body; and, in addition, the use of communication media and digital libraries are important especially in the age of ICT as distance learners have relative access to various ICT-enabled devices. The last element introduced into this definition is the need to provide distance learners with equal opportunities just as their counterparts elsewhere to succeed in their learning through the provision of support services such as digital library services (Alfrih, 2010).

The lack of uniformity in the definition of and consensus on the meanings of the concept of distance education has important ramifications for libraries supporting distance education. The first thing that needs to be recognised by stakeholders in distance education planning and implementation in a given context is that there must always be consensus among key stakeholders as to how distance education is conceived and

the kind of common strategies required to pursue common objectives. In the case of academic libraries, there should be collaboration and cooperation with distance education administrators and academics in planning important services such as digital library services. Secondly, these academic libraries must deploy appropriate technologies that ensure that distance learners are able to readily communicate their needs to the library from anywhere and anytime.

ACADEMIC LIBRARY MODELS IN DISTANCE EDUCATION

Access to the services of academic libraries in distance education is non-negotiable as services and policies in conventional education are inadequate and unfavourable to address the critical information needs of distance learners (Kiwele Mayende & Obura, 2013). Recognising the need for equitable services to the distance learning community, the Association of College and Research Libraries' (ACRL, 2008), *"Standards for Distance Learning Library Services"* advocate through the Access Entitlement Principle that:

> *"Every member of the academic community, including distance learners, are entitled to the library services and resources of that institution, including direct communication with the appropriate library personnel, regardless of where enrolled or where located in affiliation with the institution. "*

Following the access entitlement principle, a number of academic libraries have devised innovative approaches to providing effective services to their distance learners. Gopakumar (2014) examined distance learning library services at the Indira Ghandi National University (IGNOU) of India by reviewing a number of distance learning library models, including those of the University of Virginia, Loughborough University, the European Commission, and the Coalition of Modern Universities. The common features in these library models are as follows:

- Web-based library services;
- Availability of digital reference services;
- Information skills instruction; and
- Inter-library cooperation and consortia.

In a study of library support to distance education students in Sudan, Abdelrahaman (2011) proposes a hybrid library model which consists of web-based and conventional library services. In this model, the author recommends the appointment of a distance learning library coordinator to manage distance education library services. They include the enhancement of faculty-librarian collaboration in developing online courseware upon which online reserves will be based, providing digital reference through e-mail and chat services, inter-library loan services, electronic document delivery and teaching information literacy for first-year students, developing favourable library policies in respect of lending services to distance learners, providing off-site or remote access to digital library resources, and the hosting of digital library services on webpages of distance learning providers.

Igwe and Onwuchekwa (2015) also suggest for the National Open University of Nigeria (NOUN) a model anchored on mobile learning which further promotes mobile technology in library services delivery, the development of an institutional repository, the development of a virtual library, information literacy, continuous re-skilling in ICT for both the staff of the library and the institution as well as students, and a plan backed up by a reliable funding source. In a national survey of distance education in Korea, Kim and Lee (2015) propose the establishment of a centrally developed and managed digital library to serve the needs of distance learners in Korea. This opinion was based on their finding that many virtual universities provided insufficient library resources and services as a result of lack of professionalism in library services delivery. Henning (2010) reports that Unisa library draws on the best models to deliver distance learning library

services by inculcating the access entitlement principle in its library operations as an ODL institution. The model of the library is also anchored on its library strategic plan which draws from the university strategy.

In a review of distance learning library services in some North American libraries, Huwiler (2015) recommends a six-point framework for designing distance learning library services. The framework consists of: environment, access, resources, being real, availability at the point of need, and instruction. The author contends that these priority areas may be used as a guideline for best practices in the implementation of distance learning library services. In terms of the environment, services to provide include, creating a library Web-page for distance education programmes. It has been confirmed in the recently published *Survey of Library Services for Distance Learning Programmes* (Primary Research Group, Inc, 2013) that most libraries (70%) have a Web-page that addresses distance learners' information needs. For access services, libraries may provide course-specific databases and Internet resources that are tailored to the needs of distance students.

"Being real" and "availability at the point of need" requires the library to establish personal and ongoing relationships with distance learners. In this regard, Huwiler (2015) outlines the use of phone calls and online videos, among others, by librarians to "create a feeling of dealing with a real person instead of a computer". This need for personalisation has already been implemented in some libraries. Malik and Mahmood (2013), reporting on the ICT applications for digital reference services in Pakistan, found the use of cell phones and short messaging services (SMS) as a source of instant interaction among library users, librarians and library resources. In regards to instruction, Huwiler (2015) also suggests that libraries are expected to provide synchronous and asynchronous forms of education specifically on information literacy to distance learners in order to boost their confidence and reduce their anxiety in the use of electronic resources.

Academic libraries are involved in providing learner support to distance learners through digital library services and resources. As students who are separated by distance from their home institution and teachers, distance education students may make use of digital libraries to access critical information resources (Witten et al., 2010:50). Lesk (2005:219) is of the view that, unlike users in the traditional library who may be seen, the global nature of digital library users requires making use of telecommunication technologies such as telephones, e-mails, and online chat services to communicate with these users, or alternatively, the development of cooperative agreements with other libraries may be useful to assessing their needs.

Witten et al. (2010:61) explain further that with ICTs, librarians are challenged to serve "absent users" through virtual reference services such as text messaging, live video and voice chat. They argue that remote digital reference services constitutes a significant organisational and technical challenge which must be seen as just as important as the content in a digital library. Digital reference services in academic libraries have been achieved through two dominant models: asynchronous and synchronous approaches (Tedd & Large, 2005:37). Asynchronous models involve users sending e-mails to the library or using a Web form to specify required information with an expectation that an answer to the request will be provided in due course. Synchronous services on the other hand, make use of real-time communication services such as live chats in a two-way communication approach through the use of appropriate technologies such as video conferencing. These facilities can be used to achieve remote communication with distance learners (Bower & Mee, 2010). Li (2013) believes that distance learners appreciate facilities that help them to overcome the barrier of distance. She posits further that many academic libraries that offer virtual reference service were motivated by the needs of their distance learners. A number of these virtual services, according to Li (2013) include "Ask-a-librarian" service, e-mail reference, electronic reference desk, personalised virtual reference, global chat services and the provision of proxy access to digital library resources.

The use of mobile phones for digital reference is becoming commonplace in some academic libraries in Africa. Mbambo-Thata (2010) describes the use of the Airpac mobile phone service at Unisa in South Africa to enhance access to information resources in an ODL context. Among others, the service helps to reduce

transactional distance between distance learners and Unisa, and it simplifies access to the library's resources by enabling remote borrowing through the library catalogue. In addition, Henning (2010) reveals that Unisa library makes use of digital video discs (DVDs), Web 2.0 technologies, and innovative mobile services to showcase information for current and prospective students on a range of services such as library resources and services, digital library resources including databases, information delivery services that includes replicating, alert, search, and reference services, information resources on career guidance, and the provision of lifelong learning skills at the time of graduation.

Similarly, digital libraries have been used to impart information literacy skills to distance learners. Ladell-Thomas (2012) reports that even though distance learners were provided assistance in locating relevant databases, search terms, and Web links through one-shot information literacy instructions and subsequent "walk-ins", students passively followed instructions rather than applying information literacy skills. On the basis of this challenge, a self-directed learning information literacy module was developed to guide students navigate through the research process. In addition, the module also facilitates digital literacy skills, especially in open and distance learning (ODL) contexts. Digital libraries can be used in teaching information literacy to distance learners. Pastula (2010) also outlines the use of the library website, Adobe captivate, and Connect Presenter to teach information literacy to distance learners at the Massey University in New Zealand. She describes these formats as customisable, up-to-date and accessible from any computer connected to the Internet and the potential for tutorials to be linked or embedded in learning management systems to increase access rates.

Digital library technology can also be harnessed to support e-learning. Taylor (2002) describes e-learning as all web-based learning processes and applications whose ubiquity has made it very attractive to many people in society. According to Burns (2011:66) e-learning or online learning as a web-based distance education approach has become a strong contender in the educational system due to the following unique features:

- It provides "multichannel instruction" consisting of print, audio, visual, and video-based content;
- It creates access to a variety of formats for text-based, audio, and video-enabled real-time communication and worldwide collaboration; and
- It ensures a seamless learning experience for learners with Internet access.

Burns (2011:63-70) posits that a high number of e-learning programmes employ the Internet as a medium for content and interactions. Furthermore, blended or hybrid courses offer a fairly to substantial content and communication on the Internet. Both Burns (2011:63-70) and Taylor (2002) affirm that e-learning is a cost-effective method of education, considering the fact that similar learning outcomes may be achieved in comparison to traditional forms of education. Burns (2011:66) also argues that other considerations for the adoption of e-learning are the enhancement of face-to-face education, accessibility to experiences, resources, and professional collaborations, and in terms of teacher education-enhancing access to continuous learning, the deepening of access to instructional practices, addressing teachers' content knowledge, providing access to curriculum and contents support, promoting reflection and dialogue; and providing a tool to model good instructional practices.

Digital libraries and e-learning-based distance education possess the common characteristics of having the ability to transcend the traditional barriers of time and space (Virkus et al., 2009). Sharifabadi (2006) attributes the popularity of digital libraries in the educational sector to the rise of distance education. He describes digital libraries in e-learning as a federation of library services and collections that work collectively to ensure a digital learning community. He outlines a number of activities digital libraries may support in e-learning. For students, digital libraries can enhance access to curricula and courseware materials, lectures, lesson plans, computer programs, modelling and simulation, intelligent tutoring systems, access to remote

scientific instruments, project-based learning, raw data for student activities, and multimedia image banks. For teaching faculty, it can provide annotation, evaluation, and peer review of donated materials. For both students and faculty, it can provide a digital forum for peer-to-peer interaction, and facilities for providing archiving, location-independent naming, recommender systems, selective dissemination of information, and copyright management.

THE ROLE OF DIGITAL LIBRARIES IN DISTANCE EDUCATION

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STRATEGIES FOR INTEGRATING DIGITAL LIBRARIES INTO DISTANCE EDUCATION

The non-usage or under-usage of digital library resources by distance learners has been attributed to the lack of or inadequate integration into the curriculum. Selwyn (2011) found that even though distance learners were cognisant of and used digital technology in their learning, they used it as a supplementary learning aid when they were confronted with problems in their print learning materials instead of incorporating technology into their mainstream learning and for creating collaborative learning. Selwyn (2011) is of the opinion that in spite of the long-regarded autonomy and the choice of the distance learner to use or not to use digital resources in their learning, institutional barriers may sometimes account for these decisions. He

suggests that pedagogical changes in tandem with sound principles may result in the integration of digital library resources into the curriculum of distance education students.

Regarding students' use of digital resources, Bolick et al. (2004) aver that it is necessary for changes to be made in the teacher education curriculum if digital libraries are to be used to support innovation in the classroom, for both teachers and students as current practices seem to suggest. Merchant and Hepworth (2002) in a study of the information literacy skills of teachers and pupils in two single sex schools in the United Kingdom report that, in spite of the fact that teachers were adequately information literate, their pedagogical practices were not planned in such a way that their skills and attitudes can be transferred to their students and this potentially resulted in the minimal use of digital library resources among their students.

Bolick et al. (2004) are of the opinion that changes to the curriculum to inculcate the use of digital library resources may require revising how teaching and learning are done in teacher education. Furthermore, integrating digital libraries into the teacher education curriculum may lead to an increase in teachers' technology skills and rich learning experiences. Perrault (2007) supports this view by suggesting that reasons for under-use of online digital library resources by teachers can be lack of information literacy skills training and lack of integration of digital library resources into the curriculum. She points out that these challenges highlight the need for collaboration between library staff and teachers on one hand, and the school on the other.

Despite its indispensable role in e-learning, a significant challenge for digital libraries is the lack of integration with e-learning (Virkus et al., 2009; Sharifabadi, 2006). With the introduction of e-learning to supplement occasional face-to-face meeting with distance learners in a number of Ghanaian universities, including the University of Education Winneba, it has become imperative to integrate digital library resources with e-learning platforms to ensure that learners access both educational and informational resources seamlessly (Koohang, 2004). This concern has been highlighted in studies by other librarians who offer suggestions for integrating digital libraries with e-learning. Eke (2010) proposes a framework for integrating the digital library into e-learning and this involves the creating of a multimedia library website and embedding interactive online information literacy modules using social tools, participating in collaborative teams with faculty and technology experts, providing access to e-resources, organising and providing access to online tools, involvement in teaching and learning activities, and creating learning repositories. Sharifabadi (2006) makes a call for strategic support by key institutional leaders to ensure that the digital library supports the range of teaching and learning goals in the classroom, rather than simply modifying existing information. Finally, Virkus et al. (2009) insist that for integration to be effective, digital libraries should be considered as institutions with a significant role in the academic community and processes, and not just as content providers, an approach which can result in transformative learning. According to Yen (2009:478), integrating digital libraries into e-learning must be guided by the following actions:

- All relevant learning resources must be included,
- Resources must be organised into logical categories,
- A knowledge vocabulary, including a thesaurus, must be built,
- Indexes and search mechanisms must be generated,
- Organisational categories must be continually refined.

Yen (2009:479) also proposes four possible models for integrating digital libraries into e-learning and these include the laissez-faire approach, the intermediary approach, the advanced approach, and the quasi-all-inclusive models. The laissez-faire model grants freedom of choice to users in respect of the type of their preferred resources and services. The disadvantage of this model is, however, the lack of quality control and limited coverage of the resources and services. The intermediary model involves the digital library identifying and providing access to the resources in its collection, whether owned by the library or by a third party. A number of institutions, such as the University of Western Australia Library in Australia, use this model. The advanced model operates like the intermediary model, but in addition curates course materials created by course instructors. The author points to the uniqueness of this model which ensures integrated access to the resources of both e-learning and the digital library by users. Users of this model include the Stanford University Library in the US and the Wageningen University in the Netherlands. Finally, the quasi-all-inclusive model refers to the system where all the information needs of instructors and students are met by the digital library. This happens with the digital library reproducing the comprehensive resources of the e-learning curricula such as textbooks, newspapers, and multimedia resources. The University of Pennsylvania Libraries in the US uses this approach.

CONCLUSION

This study has determined that the field of distance education is fraught with identity challenges, just as with digital libraries. Perhaps this is because of the tremendous impact of modern information technologies on these two fields. The study also shows that different models are used by different distance education providers, and that the most appropriate model is the one that satisfies the needs of users. Similarly, the study explores the role of digital libraries in distance education and how these two fields may be integrated. The literature demonstrates that academic libraries can play vital roles in distance education through the deployment of digital libraries. More specifically, academic libraries must pragmatically integrate digital libraries into the distance education curriculum through its institutionalisation in the academic community and the business processes of the institution. This conception may result in digital libraries being considered transformative learning resources, rather than as transcient content providers.

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