

OSLO AND AKERSHUS
UNIVERSITY COLLEGE
OF APPLIED SCIENCES



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**Knowledge management in a distance education
environment: a leveraging tool**

ABSTRACT

Purpose: Taking into account that the primary mission of educational institution is the creation, preservation, integration and application of knowledge vis-a-vis with the rapid advancement in information and communication technology has lead to a convergence of teaching and learning wherein open and distance learning is becoming the most common mode of delivery of education.

Knowledge management on the other hand, has become an increasingly high profile approach to making education more effective, particularly for geographically dispersed learning environments since it provides ways of reducing the constraints of existing operational management structures to improve innovation, responsiveness and creativity.

Therefore, knowledge management and distance learning could be two complementary fields that address the same fundamental problem that is facilitating learning in organizations. This thesis explores the uniqueness, difference and overlap of these two concepts; and aims to find out if being integrated together can provide better leverage of resources and optimize activities in the field of education.

Design/methodology/approach: The study presents a qualitative approach based on the philosophical assumption from an interpretivist standpoint that is based on a relativist perspective. This research employed case study research approach, using the interview methods and document analysis to gather data. Several literature were also reviewed, resources ranged from journal articles, conference presentations and papers, student reports and thesis, as well as a relevant book chapters.

Findings: Knowledge management though not explicitly and formally a part of the open and distance education (ODE) provider organizational structure, the experiences and practices that the particular case study has set in place is a manifestation of how knowledge is a highly valued asset of the organization. With all the issues of dwindling funds, evolving needs and technological changes, time, distance and all the other demands in both personal and professional level, ODE providers have found their way to strategize their objectives, goals and activities through tools and techniques that allow sharing, use and re-creation of knowledge to their benefit. Hence, knowledge management did not only becomes a leveraging tool for teaching and learning in a distance education context, but it also places the organization in an advantageous position in the educational arena.

Keywords: distance education, knowledge management, knowledge service models

Declaration

I certify that all material in this dissertation which is not my own work has been identified and that no material is included for which a degree has previously been conferred upon me.



Audrey G. Anday

Acknowledgement: *Tusen takk! Suur aitah! Grazie mille!*

The researcher would like to express her deepest gratitude first and foremost, to the Lord God Almighty, for the inspiration, guidance and wisdom, all through out this journey, during the writing of this research paper, and for entrusting all the necessary experiences to accomplish this work.

This thesis would not have been successfully realized if not for the full support of the following:

- Sirje Virkus, her research supervisor, whose unwavering support, trust, encouragement and supervision guided the way to the completion of this research. *Thank you for being a great mentor and believing in me.*
- All the DILL professors, visiting scholars, lecturers and administrators of the three cooperating Universities – Høgskolen i Oslo og Akershus (Oslo, Norway), Tallinna Ülikool (Tallinn, Estonia) and Università Degli Studi di Parma (Parma, Italy) specifically Ragnar Audunson, Ragnar Nordlie, Nils Pharo, Tor Arne Dahl, Sirje Virkus, Aira Lepik, Anna Maria Tammaro, Pat Dixon and Vittore Casarosa, Sue Myburgh. *Many thanks for all the knowledge and expertise you have generously shared and for making the academic life a worthwhile experience for all students.*
- The administrative and support staff, namely: Kersti Ahrén Heløe, Merje Kuusk, Karin Oolu, Maiken Niit, Federico Monaco, Sara Valla and Elena Corradini. *Thank you for the unwavering support and availability during the whole duration of the DILL program.*
- The European Commission through the Erasmus Mundus Mobility Programme. *The financial support all throughout the two year master's program studies made living in Europe possible.*
- The research participants from the Universitat Oberta de Catalunya (UOC) and Prof. Tiit Elernum of the Estonian Business School. *Thank you for the warm welcome, wholehearted participation and full cooperation during the interviews, without you this thesis would not have been accomplished.*
- The DILL-4ever family: new sisters: Adina Ciocoiu, Elnara Bayramova, Ewelina Melnarowicz, Helen Weldeargay Tekulu, Jennifer Whisler, Jing Wu, Live Kvale; new brothers: Abu Imran Mohammad Jakaria Rahman, Dydimus Zengenene, Enrico Francese, Hugo Huurdeman, Kevin Wan Utap Anyi, Luis Mario Segura Hechavarria, Muharrem Yilmaz, Rasmus Thøgersen, Wondwossen Mulualem Beyene. *The Erasmus Mundus journey would have not been complete in the absence of even one of you. All of you will always be remembered with so much gladness and memories of you will surely take me to euphoria.*
- DILLer friends from 1, 2, 3 and 5: Getaneh Agegn, Liliana Melgar, Juan Daniel Mastromatteo, Marcial R. Batiancila, Emily Frank, Momena Khatun, Nguyen Kim Lan, Valentina Milovanovic. *Thank you for the short but sweet encounters that inspired and enriched further the DILL experience. Stay in the loop of learning.*

- Philippine colleagues and friends: PLAI-STRLC Family, Lourdes T. David, Charina de Asis, Clara Melanie Exconde, Mylah Pedrano, Raquel Bueza-Angiwan, Mary Grace Quillooy, Jocelyn Mary Revilla, Helen Rubio, Venus Merana-Jena and Emerson Aguilar. *Thank you for the moral support, continuous prayers, words of encouragement and warm friendship that sustained me in all the changing seasons of my European life.*

- Finally, to my loving family: +Abner Aguilar Anday and +Miguela Vilma Capistrano Gendrano, Ardyth, Gerard, Sining Mithi, Mayumi Likha, Ailynn, Ernani, Miguel Anrei, Alviar Michael and all my relatives – *for the unconditional love, care and prayers that pushed me to carry on and not give up. Heartfelt gratitude also goes to Mathias Oster, for being one of the many angels in disguised, your patience and inspirations convinced me to explore the beauty of this other side of the world. Thank you for always being there to make me smile and for sharing great memories that saw me through all the sunny, cloudy, snowy, windy days in Tallinn.*

- To all whom I might have missed to mention, who in one way or another, contributed in making this study a reality, I am truly grateful for the blessing of your presence.

27 June 2012

Tallinn, Estonia

Audrey Gendrano Anday

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List of Abbreviations

DE	Distance Education
DERP	Distance Education Research Participant
DL	Digital Library
DLF	Digital Library Federation
EU	European Union
ICDLE	International Conference on Distance Learning and Education
ICT	Information Communication Technology
KM	Knowledge Management
ODE	Open and Distance Education
OECD	Organization for Economic Co-operation and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
UOC	Universitat Oberta de Catalunya

Chapter 1 **Introduction**

This study explores how knowledge management principles, tools and models are practiced formally or informally in a distance education environment thereby assisting the provision of library resources and services of the digital library in the distance education context.

This chapter provides rationale and motivation for this study and background and context for this research. The aim of the study and the research questions are then presented. The justification for the research and the methodology used in this research are then discussed, followed by definitions, limitations and significance of the research. Finally, an outline of the structure of the thesis is presented.

1.1 Rationale and Motivation

This study was developed from the researcher's interest and experience in distance education with the quest of how knowledge management (KM) can assist the provision of library resources and services in the digital library age specifically applied in the distance education environment.

The need for rapid access to relevant knowledge has never been deemed so important until the world moved into the 21st century where the business world became increasingly competitive and there arises an enormous demand for innovative products and services.

Human being on the other hand, viewed as a social being has his innate nature that stimulates a certain curiosity or hunger for information that eventually leads to different breakthroughs and knowledge discovery. Thus paving the way for lifelong learning to become a goal of most of the educational providers in the world. There have been different meanings ascribed by various authors regarding lifelong education and lifelong learning but this one definition of Knapper and Cropley referred by Kiley and Cannon (2000) is the simplest:

The single crucial element in the notion of lifelong learning is to be found in the word 'lifelong': it embraces a set of guidelines for developing educational practice ('education') in order to foster learning throughout life ('lifelong'). Lifelong education

thus defines a set of organizational, administrative, methodological and procedural measures, which accepts the importance of promoting lifelong learning (p.2).

Furthermore stating that in essence, the basic idea behind the term 'lifelong learning' is that deliberate, focused learning does and should occur throughout a person's lifetime (Kiley and Cannon, 2000). Which therefore supports Gavigan et al. (1999 as cited by Antonova et al., 2006) point that relates knowledge with learning. Knowledge is defined as 'a state or potential for action and decision in a person, organization or a group'. Subsequently, learning is the process which causes changes in this state - change in understanding, decision or action (p.63). Thereby confirming also that in today's economy, knowledge is people, money, leverage, learning, flexibility, power and competitive advantage (Geisler and Wickramasinghe, 2009) and European Union's (EU) view of lifelong learning as "all learning activity undertaken throughout life, with the aim of improving knowledge, skills and competences, within a personal, civic, social and/or employment-related perspective" (ESAE, 2007) served as a initial motivating factor to consider in pursuing a research in this field.

"Knowledge is power" and "Education is for all" are some famous sayings that have always been believed to be a fact, used as slogans/themes and were given utmost attention and importance for a long time. Geisler and Wickramasinghe (2009) said that "knowledge has been defined primarily with respect to its utilization within a given scheme, platform or functional framework". They cited Davenport and Prusak's (2005, p.305) definition of knowledge as "framed experiences, values, contextual information and expert insight that provides a framework for evaluating and incorporating new experiences and information." In addition, Geisler and Wickramasinghe discussed a few examination of the meaning of the knowledge in the ancient culture that revealed that "knowledge" has been defined as the human ability to understand the world we inhabit and to discern the foundations, reasons, processes and limits or boundaries of our existence. (p.26).

These concepts of knowledge and continuous engaging oneself in the learning process in order to remain creative and imaginative has been neglected for quite a time until organizations learned that human skills, expertise and relationship were the most valuable resources for them. Coincidentally, according to the Organization for Economic Co-operation

and Development (OECD) identifications, knowledge can be divided into four categories: know-what; know-why; know-who; and know-how. Or simply, it is understanding knowledge; management knowledge and technical knowledge with an additional two: timely knowledge (know-when) and position knowledge (know-where) proposed by Lingyong (as referred to by Shuchun, 2002).

Companies then do not capitalize on the wealth of expertise in the form of knowledge scattered across their levels nor maximize the use of data and information, coupled with the potential of people's skills, competencies, ideas, intuition, commitment and motivation. (Geisler and Wickramasinghe, 2009)

Many companies have to face high competition nowadays. Some struggle to implement corporate strategies to response to existing markets. Through the use of knowledge management, they not only gain high benefit, but also able to compete with other companies. Knowledge management has been very important for all kinds of business as it can assist the companies improve their service, increase quality of product, reduce cost and faster response to their customers. Nonetheless, the major challenge of managing knowledge in the companies is capturing and integrating knowledge to share among all organizational members (Grant, 1996). Furthermore, according to Davenport and Prusak in 1998 and Grant in 1996 shared that successful company has to gain the ability to collect, store, and distribute specialized knowledge to create and sustain competitive advantage. Knowledge then becomes more relevant to sustain business than capital, labor or land and so KM developed as the combination business strategies, processes, tool and techniques need to address this void in organizations. (Geisler and Wickramasinghe, 2009)

The traditional knowledge creation and transfer such as face-to-face contact, job rotation, and staff training program may prove to be too slow and less effective, as markets and organizations become more global. The need to develop more efficient means has led to implementing information systems that are designed specifically to facilitate coding, combining, and applying of organizational knowledge (Alavi and Leidner, 1999).

These ideas and how they can be integrated, provided the researcher the motivation to pursue

the conduct of this research aiming to explore how knowledge management in the field of digital libraries can be a leverage tool in the distance education environment and how a combination of these three aspects contribute to creation, delivery and improvement of educational resources and services to the growing number of distance learners. This study aims to initiate the beginning of more in-depth studies on this specific field of study.

1.2. Background and Context

Wells and Claxton (2002) raised the question regarding the goals of education and by what means can those goals best be achieved given the present condition where there are so many changes happening in the social, economic and political arena of the present time. Entering the twenty-first century with the new uncertainties and demands created by globalization, the rise of the “knowledge economy” and the growing recognition of the need for greater ecological responsibility, addressing these questions becomes more important than ever. Furthermore stating that education is not, at root about the transmission of specific bodies of knowledge and skills. Rather a development of understanding and the formation of minds and identities: minds that are robust enough and smart enough to engage with the uncertain demands of the future, whatever they may be, and identities that are attuned to the changing communities of which they are members and able and willing to participate effectively and responsibly in their activities and thus to contribute to, and benefit from, their transformation. Thereby arguing as well that education at this point in history is centrally about the development of a mind to learn (p.2).

Lifelong learning is one area of interest that arises primarily from changes in the economy. Developments such as the rapid diffusion of information and communication technologies, constant application of science and technology to new fields and the globalization of trade in goods and services have made it possible to rely on existing ways of educating and training the workforce (Field and Leicester, 2003, p.xvii). To which supported by what has been stated in the charter for lifelong learning of the G8 group of government from the eight largest economies put:

The challenge every country faces is how to become a learning society and ensure that its citizen are equipped with the knowledge, skills and qualification they will need in the

next century. Economies and societies are increasingly knowledge-based....everyone should be encouraged and enabled to continue learning throughout their lives, not just in the years of compulsory schooling (G8, 1999).

Knowledge management can play an important role to make companies compete productively. It has been used in most product-based companies and it has also extended to be used in service sector. However, there are not many studies looking closely to explain the situation in the service industry while service sector is continuously growing. Thus, it is necessary to understand the situation and how the service sector develops knowledge management strategy. In the same manner that the libraries and distance education are considered to be service oriented sector. Libraries provide students the resources they need to facilitate the increase in their understanding of the subject or field of interest, while distance education provides a means to address the ability of people to pursue continuous learning regardless of their current condition in life.

This research attempts to explore how knowledge management could be essential for libraries providing open and distance education (ODE) in the digital age and show how the use of knowledge management can help gain competitive advantage. The main problems and barriers that ODE might anticipate during the knowledge management implementation will also be discussed.

1.3. Statement of the Problem

Knowledge management is a great tool in ensuring that the right information is provided to the right users at the right time. While Digital libraries are becoming the next important tool in providing a wider coverage of resources and services in this information age. With the increasing demand of the knowledge-economy based society, accomplishing one's continuous quest for knowledge as very much restricted with different factors that hinder personal and professional growth. Given the unique teaching and learning provided by distance education, the research is interested to know, how the application of knowledge management and digital library could enhance the creation, sharing and development of a better distance education program that rightfully addressed the growing diverse educational needs of the target and

existing student population.

There are three main objectives for this thesis:

1. to present the aspects that can help create and sustain successful knowledge work management.
2. to provide the utilization of knowledge management for the provider of ODE.
3. to analyze problems and how the ODE providers of library services could handle these problems.

1.4. Research Questions

The following research questions were developed in this research:

1. To what extent are ODE institutions involved in the knowledge management processes?
2. How do the providers of ODE use knowledge management to gain competitive advantage?
3. What are problems and barriers that ODE providers anticipate during implementing knowledge management?

1.5. Justification of the Research

The increasing awareness of knowledge management in the field of digital library and the continuous changes occurring in the field of education somehow created a gainful insight that led to an interesting need for research on this topic. This type of research may yield a better understanding of how knowledge management in the digital arena can serve as leveraging tool that would assist in shaping the changing roles and goals of education with particular focus on the distance education environment.

This research will serve as one of the pioneering investigations on the interplay of the three concepts: knowledge management, digital library and distance education in the creation, delivery and development of resources and services to the target clients.

1.6. Methodology

This research is based on an interpretivist philosophical standpoint that is grounded on an ontological belief that reality is socially constructed (Pickard, 2007). The methodological approach of this study therefore is qualitative in nature wherein the experiential and context-based data were collected through the use of semi-structured interviews.

The case study strategy was used and research was limited to one case study that included administrators with or without academic load, librarians and subject specialists, staff providing learning support, technologists plus experts in the field. The participants of the research included three males and four females from the different departments of the University under study. Data analysis was conducted based on five steps thematic analysis of Peterson et al. (1994): (1) searching for individual themes, (2) developing each theme previously identified, (3) determining the significance of each theme; (4) searching for oppositions among themes and thematic hierarchies, and (5) comparing thematic hierarchies and oppositions across transcripts. A detailed presentation of the methodology is provided in Chapter 3.

1.7. Scope and Limitation

This study is limited to the integration of knowledge management and digital library in the distance education environment wherein KM applications can serve as leveraging tools in providing resources and services to distance learners. The research participants are limited to the administrative, academic and support staff of the case study institution being studied of which the mode of teaching and learning is conducted virtually and/or the library resources and services are delivered semi or fully online. In addition, the case study is within the European Union country. In terms of theoretical framework and reviewed documentation only English language literature and documentation was reviewed.

1.8. Definition of Terms

This section explains the fundamental concepts of distance education, e-learning, open and

distance learning, knowledge management and digital libraries used in this study.

Distance education results from the technological separation of teacher and learner which frees the student from the necessity of traveling to “a fixed place, at a fixed time, to meet a fixed person, in order to be trained” (Keegan, 1995, p. 7). Thus, distance learning is improved capabilities in knowledge and/or behaviors as a result of mediated experiences that are constrained by time and/or distance such that the learner does not share the same situation with what is being learned.

e-Learning is defined as the delivery of a learning, training or education program by electronic means. E-learning involves the use of a computer or electronic device (e.g. a mobile phone) in some way to provide training, educational or learning material. (Stockley, 2003)

Digital library is a focused collection of digital objects, including text, video and audio, along with methods for access and retrieval and for selection, organization and maintenance of the collection (Witten, Bainbridge and Nichols, 2010)

Knowledge management is a formal process that engages an organization’s people, processes and technology in a solution that captures knowledge and delivers it to the right people at the right time (Duffy, 2001)

Open and distance learning (ODL) is referred to approaches to learning that focus on freeing learners from constraints of time and place while offering flexible learning opportunities. For many students, ODL is a way of combining work and family responsibilities with educational opportunities. (UNESCO, 2003).

A more detailed description and further elaboration of the concepts are presented in Chapter 2.

1.9. Outline of the Research

This thesis consists of five chapters comprising the major parts of this research endeavor. The first part provides an introduction that includes rationale and motivation of the research, background and context of the study, statement of the problem, research questions, justification of the research and methodology. The definition of main terms, limitation and scope of the study, thesis outline and conclusion are presented.

Chapter 2 presents the literature review related to the fields being studied. This chapter contains a background and overview of the concept of KM in the digital library (DL) field particularly applied in the distance education environment. The review also illustrates the links between knowledge management, digital library and distance education and provides theoretical foundations for this study.

Chapter 3 describes the methodology utilized in this research. The data collection and analysis methods are described. This chapter further provides the details on how the data analysis was made. The results of the data analysis and discussion of the main findings of the study are presented in Chapter 4.

Finally the Chapter 5 reports the summary, conclusions and implications of the study. It also offers suggestions for areas of further research. References and appendices are also included.

Chapter 2 Literature Review

This chapter analyzes literature that are related to understanding how knowledge management can assist provisions of digital libraries in the distance education environment. Furthermore this chapter describes how knowledge management, digital libraries, and distance education can create a “synergy” that will make things simple and ensure delivery of resources and services at the right time to the right people in need of them. Studying these three concepts would serve as the foundation points for this study.

Databases such as EBSCO, ProQuest and Google Books has been searched using the keyword: “knowledge management and distance education”, “knowledge management and digital libraries”, “digital libraries and distance education” and “knowledge management and digital libraries in distance education”. References cited from the relevant articles retrieved were also located. The criteria for selecting the literature includes timeliness, relevance to the topic and contribution of each concepts in establishing the relationship among the three major ideas. Available books at the Tallinn University Academic Library were also consulted and examined using the same keywords.

2.1.. Overview of Concepts

The concepts of education, lifelong learning, distance education, knowledge management and digital library were briefly defined in Chapter 1. In this Chapter in-depth discussion will be provided.

2.1.1. Education and Lifelong Learning

Life evolves around this most extraordinary times: the end of the Cold War, a redefinition of the world economic order, where the impact of technologies ranging from computers and telecommunication to biotechnology, and a time in which the human population is pushing against the very limits of the planet. Going through a period of change in the current civilization just as momentous as that which occurred in earlier times such as the Renaissance or the Industrial Revolution— except that while these earlier transformations took centuries to

occur, the transformations characterizing our times will occur in a decade or less is a belief that more people have started to accept as truth. (Duderstadt, 1997)

Great change, shifting paradigms have provided the context in which changing nature of the higher education enterprise itself should be considered taking consideration not simply to extrapolate the past but instead to examine the full range of possibilities for the future. From which four important themes converging in the final decade of the 20th century have been identified by Duderstadt (1997): a) the importance of knowledge as a key factor in determining security, prosperity, and quality of life; b) the global nature of our society; c) the ease with which information technology- computers, telecommunications, and multimedia - enables the rapid exchange of information; and d) the degree to which informal collaboration (networking) among individuals and institutions are replacing more formal social structures, such as corporations, universities, and governments. (p.1)

Furthermore stating that age of knowledge in which educated people and their ideas have become strategic commodities essential to our security, prosperity, and social well-being. But unlike other resources such as mineral ores, timber, and access to low-skilled labor, knowledge knows no boundaries. It is generated and shared wherever educated and creative people come together. It cannot be exhausted; the more it is used, the more it multiplies. (Duderstadt, 1997)

Edwards (2000) illustrated several author's view about lifelong learning as an idealized goal for education, a process, a product, a moral duty and an empirical reality to construct and pointed out how throughout the twentieth century the academic study of lifelong learning has developed as a research interest (p.3). Furthermore, he mentioned that the role of education is to provide opportunities for adults to be educated to enable them to be active citizens in the social formation. Thereby stating that lifelong education is aimed at creating the conditions for self-realization and citizen within a liberal democracy (p.7).

To which the OECD in 2010 published a study that discussed the current trends that are shaping the current educational environment. Among the trends that were covered include several issues such as new social challenges, quality of social interactions, changing world of

work, transformation of childhood and the next generation of information and communication technology (ICT) literates.

With the changing world, recognition of that need to be highly qualified and up to date with the development of the field a person should be of utmost importance. Institutions providing the necessary training and enhancement of skills and abilities should be sensitive in addressing the diverse requirements so to keep up with the pace of the emerging trends. The availability of the right information at the right time using the right tools will make a big difference in the decision making of an individual or a larger community in general.

2.1.2 Distance Education

Distance education is an umbrella term, which includes several, more specific teaching and learning situations. Distance education can be defined as the learning process in which there is a quasi-permanent separation of teacher and learner throughout the learning process, which is also characterized by the presence of specific learning materials and student support services and by the use of different communication media (Keegan, 1990).

Similarly, UNESCO (2003) opined that distance education is any educational process in which all or most of the teaching is conducted by someone removed in space and/or time from the learner, with the effect that all or most of the communication between teachers and learners is through an artificial medium, either electronic or print. In distance education, the normal or principal means of communication is through technology. While teachers in conventional system, may adopt technology as a supplement to their teaching (p.22).

Distance education uses technology to empower student learning enabling them to be responsible for their own learning. Learning can be fostered through strategic uses of technology. In 1999, James Taylor, a professor from University of Southern Queensland in Australia gave a brief summary of the five generations of distance education that somehow exemplify how technology has impacted the delivery of education through distance mode:

Since its inception, distance education has been at the forefront of adopting

new technologies to increase access to education and training opportunities. Distance education operations have evolved through the following four generations:

- the Correspondence Model based on print technology;
- the Multi-media Model based on print, audio and video technologies;
- the Telelearning Model, based on applications of telecommunications technologies to provide opportunities for synchronous communication;
- and lastly, the Flexible Learning Model based on online delivery via the internet.

Although the latter approach is still gaining momentum, there is already emerging the fifth generation of distance education based on the further exploitation of new technologies. The fifth generation has the potential to decrease significantly the cost of online tuition and thereby increase significantly access to education and training opportunities on a global scale. This Intelligent Flexible Learning Model, will deliver a quantum leap in economies of scale and associated cost-effectiveness. (p.1)

Furthermore, Danner (2002) mentioned "Distance learning can no longer be thought about simply in terms of correspondence courses, videotapes, or public television programming. To develop effective institutional distance learning strategies in a rich technological environment, it is necessary to analyze new opportunities along a number of dimensions: the specific technologies to be employed (e.g., synchronous or asynchronous); desired levels of interactivity (e.g., video conferencing or Webcasting); potential audiences (e.g., degree seeking students or adult learners); pedagogical approaches(e.g., lecture, discussion, self-study, etc.); costs of development; and potential for income." (p.73)

Distance education and e-learning are two different things, nevertheless obviously related. Distance education describes nothing else but the possibility of dispatching teaching and learning material from a central location to the decentralized students and of administering the entire learning process in an appropriate form of communication via a central agency of the distance learning center. Distance education is therefore the right choice for all those who are not able or willing to travel to a place of instruction and who wish to work on the subjects

taught from their accustomed place of work or their familiar personal environment. (Ball, 2003 p. 73)

e-Learning, on the other hand, is a means of education that incorporates self-motivation, communication, efficiency, and technology. Students must keep themselves motivated because there is limited social interaction. The isolation intrinsic to e-learning requires students to communicate with each other and the instructor frequently to accomplish their assigned tasks. E-learning is efficient as it eliminates distances and subsequent commutes. Distance is eliminated because the e-learning content is designed with media that can be accessed from properly equipped computer terminals, and other means of Internet accessible technology. (Comerchero, 2006, p.1)

2.1.3 Knowledge Management

Rowley (2000) described KM as follows: “Knowledge management is concerned with the exploitation and development of the knowledge assets of an organization with a view to furthering the organization’s objectives.” So knowledge management can be seen as the organization and effective control of the intellectual capital within an organization including explicit and tacit knowledge of its staff in order to deal with the challenges of a knowledge society.

As information proliferates, it becomes increasingly important to develop strategies to be able to store, search, sort, and analyze it effectively. Doing so will eliminate the possibility of either being quickly overwhelm or become useless to person inquest for such information. This is of particular importance in the field of education (and even more so in distance education), where information plays such an important role in processes of teaching and learning. In response to these challenges, there has been a significant growth in the field of ‘knowledge management’, mostly in the business world but also, to a lesser extent in education itself (Butcher, 2006, p.1).

Leibowitz and Frank (2011) made a very adept description of the origins of Knowledge Management in the Preface section of their book Knowledge Management and e-learning and

it is stated to give a ground break basis for this research:

Knowledge management (KM) has developed as a field from its roots in data and information management. Organizations became aware of the need to store and retrieve knowledge that would be indispensable to their overall functions. The explosion of knowledge brought about by the technological revolution, particularly in the past decade, brought to light how much information was available on almost any given topic and that the traditional repositories for such knowledge (file cabinets, for example) were insufficient for storing knowledge.

Moreover, aside from their need to use current and stored knowledge, many organizations, willingly or not, have become the developers and dispensers of new knowledge. This historical anomaly occurs in light of the individual's ability to instantly access a plethora of information that relates directly or tangentially to one's inquiries. This linkage and the serendipitous search-outcome effect allow new ideas and thoughts that lead to innovation to occur on a regular basis. The result of these events is that the new knowledge becomes part of the repository and knowledge base of the organization. (p.xi)

On the other hand, Roknuzzaman and Umemoto (2009) mentioned that the awareness and application of knowledge have always been at the center of librarians' work, and hence, cited some authors who viewed KM as an old concept, a new name for the activities that the librarians or information professionals have been doing for years, librarianship in new clothe or a case of new wine in old.

In the context of Library and Information Science (LIS), Davenport and Cronin (2000) description of KM as 'information management' (management of internal and external publications) while in the business process context, KM is seen as management of know-how. Furthermore, Corral (1998) remarks that librarianship is often used to describe as the organization of recorded knowledge, and some people view KM as just an up-market label for information management, hence, she certainly believes that KM is the job for librarians.

Despite that possibility of a link between information management and knowledge management, many authorities such Koenig, Schwarzwald, Southon and Todd, Morris, and Davenport, have tried to distinguish KM from librarianship and information management. Davenport (2004) claims that KM is a domain that is distinct from both librarianship and information management because what is managed is wider, and more challenging. Although Ferguson (2004) does not agree that KM and IM are completely distinct. He can see significant differences in the emphasis of each, and raised the question of the hyperbolic claims about KM being “souped-up” librarianship.

Roknuzzaman and Umemoto (2009) quoted Owen’s differentiation of KM and IM,:

The traditional information management is focused on information as an object and on explicit, factual information managed through automated systems. Its object is to support internal processes and ensure the quality of business operations. Knowledge management, in its broadest sense, is focused on knowledge as a concept and on tacit knowledge embodied in individual people and in the organisation as a whole. Its primary aim is to facilitate knowledge-rich relations and to ensure ongoing development and innovation

Knowledge management involves connecting people with people, as well as people with information. It is a management philosophy that combines good practice in purposeful information management with a culture of organizational learning, so as to improve business performance. For many organizations and countries alike, innovation and knowledge management are no longer luxury items, but rather necessities and a means of sustaining economic development and competitiveness. KM has gained much popularity among a number of professional groups notably human resources, IT specialists, and librarians, who are taking their claims, seeing KM as an opportunity to move center stage and is considered an important innovation of the global knowledge economy (Corrall, 1998).

2.1.4 Digital Library

Tedd and Large (2005) used Witten and Bainbridge’s point of view that “digital libraries are new tools for achieving human goals by changing the way that information is

used in the world. We are talking about new ways of dealing with knowledge, not about replacing existing institutions (p.9)”. There are several studies and developments relating to digital libraries that has been written thus making digital libraries a global phenomenon. Worcman (2002) enumerated some reasons being 1) in an institutional sense, digital libraries are being established in all parts of the world regardless of its status (i.e. developed and developing, big and small countries, geographical location), 2) access to digital libraries, regardless of content location can be executed virtually by users from all over the world, 3) selection, assembly and storage of a unified digital collection can be done “physically” on computers in different parts of the world and lastly 4) previous unthinkable opportunity of cheap and effective digitization process are now available to diverse cultures, making their own local text, image and sound artifacts accessible for others. (Tedd and Large, 2005).

There are different definitions of digital library, which was also referred by several authors as ‘virtual library’, ‘library without walls’, ‘electronic library’, ‘cyberlibrary’, ‘cylibrary’, ‘ebrary’, ‘desktop library’, ‘online library’, ‘future library’, ‘library of the future’, ‘logical library’, ‘networked library’, ‘hybrid library’, ‘gateway library’, ‘extended library or information superhighway’ (Tedd and Large, 2005; Magnussem, 2003). The Digital Library Federation (DLF) (2004) defined digital libraries as:

Organizations that provide the resources, including the specialized 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.

Moreover, a comprehensive (and most quoted) definition of digital libraries was provided by Gapen in 1993, which Magnussem (2003) quoted as:

...the concept of remote access to the contents and services of libraries and other information resources, combining an on-site collection of current and heavily used materials in both print and electronic form, with an electronic network which provides access to, and delivery from, external worldwide library and commercial information and knowledge sources. In essence, the user is provided the effect of a library, which is

a synergy, created by bringing together technologically the resources of many, many libraries and information services (Gapen, 1993 in Magnussem, 2003).

Bishop and Starr (1996) summarized some of the common elements comprising the digital library concept as: a collection – to which clients must be linked in an efficient and satisfying manner; a set of services that is either human or electronic, which links the clients to the collection; the technologies involved in providing digital library services that support document creation, retrieval, transfer, dissemination, manipulation and management and lastly there must be an institution in which the digital library collections and services are embedded. (Magnussem, 2003).

2.2 Knowledge Management and Education

Today education is subject to the same pressures of the marketplace and educational institutions need to perform just as well as any other organization. According to Brown and Duguid (1996 and 2000 as cited by Na Ubon and Kimble, 2002), profound changes in competition have made universities and higher education institutions think like business. The educational markets are becoming global as universities attempt to internationalize their curricula and offer high quality programs to students regardless of location. Universities also have to adjust themselves and develop strategies to respond rapidly to the changes in technologies and increasing demands of stakeholders. Many have turned to a new paradigm that merges conventional distance education with computer and telecommunication technologies - “online distance education”.

Furthermore, Na Ubon and Kimble (2002) argued that, in contrast to much of the literature they found that the most serious obstacle to online distance education remains the constraints of time and space. Online distance education means that there are less social opportunities for people to engage in face-to-face meeting which may also involve social, cultural and language differences. There is a loss of physical interaction and contextual cues between teacher and students, and among students themselves because of the time and space constraints. Thus causing problems that can result in a lack of trust, making people unwilling to share knowledge and collaborate with others in online learning communities. (p.1)

A wide range of business techniques, including performance management, quality assurance and total quality management, have had a direct or indirect impact on education in the recent years and KM is set to do the same (Sallis and Jones, 2002 as cited by Na Ubon and Kimble, 2002). KM should have a resonance in education, as one major function of education is the imparting of knowledge. This implies that just as businesses attempt to improve the efficiency and effectiveness of their operations through KM, so educational institutions could use the potential of KM to enhance the learning of students. We can see that KM and online distance education share some common elements: community, collaboration, trust and knowledge sharing and shared understanding. Moreover suggesting, an effective KM initiative requirement i.e. a combination of the three strategies: the utilization of both explicit and tacit knowledge, the promotion of knowledge creation and sharing at all levels, and the application of the right mix of KM tools and techniques (pp.3-4)

With the proliferation of information, it becomes increasingly important to develop strategies to be able to store, search, sort and analyze it effectively. Not being able to store, sort and analyze this information effectively will either overwhelm people quickly or become useless in the end. In the field of education and even more so in distance education, information plays a particular important roles in processes of teaching and learning (Butcher, 2006). Furthermore, he noted that one of the prime examples of knowledge workers are the educators, because they typically have considerable personal discretion and responsibility in analyzing, developing and implementing their curricular goals. In the educational context, learners are not simple perceived as ‘customers’ but rather can become knowledge workers themselves, playing a unique role in producing and managing knowledge.

Thus a KM initiative in the field of education, specifically distance education, is only effective if it implores a combination of the three strategies: utilization of the explicit and tacit knowledge which involves codification and personalization, promotion of knowledge creation which involves Nonaka’s knowledge conversion process and sharing at all levels thereby becoming part of the organizational culture and the application of the right mix of KM tools and techniques that is supported by technology (Na Ubon and Kimble, 2002).

2.3. Knowledge Management and Digital Libraries

The information environment of campus has had great changes due to the development of networking and other related techniques. As the information center, consulting and scientific research center, information distribution center, the service models of university libraries are changing from the information services to knowledge services. Digital library knowledge service appropriately falls in a kind of information resources integration and information resource integration is the relatively independent of the digital resources of a system structure and function of data object, interactive relationship and reorganization, the fusion and assort for a new combination afresh, realizing the organic whole information resources transparent seamless links (Nui and Sun, 2010). Thus existing institutions, anxious to maintain their position in a fast-changing world are taking notice of exploiting the knowledge-driven value proposition. (Norris, Lefrere and Mason, 2006).

Furthermore, the implementation of information and communication technology, in the routines of the library activities facilitates users to manage knowledge. Modern librarians ensure that the right information is delivered to the right person in the right time in order to take the most appropriate decision (Krishnan, 2009).

2.3.1. Knowledge Service Models of Digital Library

Zhang (2004) noted that among the various services provided by the traditional library, the main one is the interaction between the librarian and user or the direct interaction between the user and various resources. Failing to analyze and summarize the experience and knowledge acquired during this interaction, the library cannot accumulate experiences and knowledge nor share these experiences and knowledge with other users, making the resources static, undiscoverable and there is no addition of new knowledge. In addition, people's demand for the knowledge service should resemble consulting an expert and that such service promptly provide customized, convenient, comprehensive, intelligent, systematic and all-around services that can solve the issues at hand. Thus, he proposed a solution: an introduction of the knowledge service mechanism into the digital library. The knowledge service model is

composed of three layers: an information layer, a knowledge layer and a knowledge services layer (see Figure 1)

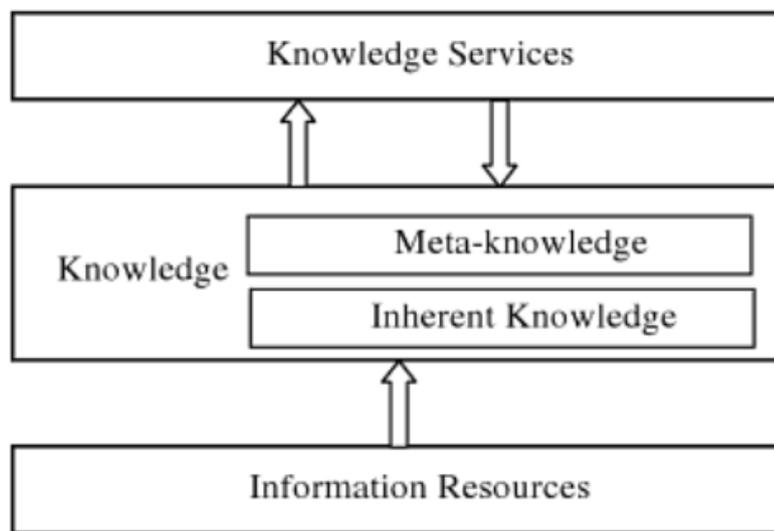


Figure 1. Knowledge Service Model

Ideally a digital library objective is to provide that “all citizens anywhere anytime can use any Internet-connected digital device to search all of human knowledge” thereby prompting a digital library to organize, process and manage massive information resources systematically and effectively. Moreover, it should effectively gather and represent knowledge that is accumulated during reading, understanding, disseminating and utilizing information resources to provide complete, fast and accurate knowledge service to readers. (Zhang, 2004)

Users therefore are the important promoters and center in this process of carrying out knowledge service in the digital library. Nui and Sun (2010) stressed that in the new information environment, the knowledge needs of digital library users will be diverse, accurate, personalized and presented with a wide range of carrier. Thus they proposed a three type of model that is user-oriented: user self-service mode, professional service mode and personalized service mode.

Li and Li (2009) defined knowledge service as a solution-oriented reference service which takes users’ objectives as driving forces and is involved with users’ learning and decision making processes. With an open service model, it offers distributed and diversified dynamic

resources using multiple methods of the system and service integration as well as the teamwork. Providing specialized and personalized knowledge service is the way the digital library is integrated into the distance education environment to which the following principles of knowledge service of DL are drawn: user-driving principle, specialization principle, personalization principle, dynamic principle and integration principle.

Furthermore, according to Li and Li (2009), in the distance education environment, the knowledge service models of digital library can be divided into four types: specialized service model based on subject knowledge base, content-based reference service model, personalized custom-made service model and teamwork service model. It was also stressed that these four models are not independent from one another instead are integrated in and realized by a knowledge service platform of digital library, which is illustrated in Figure 2.

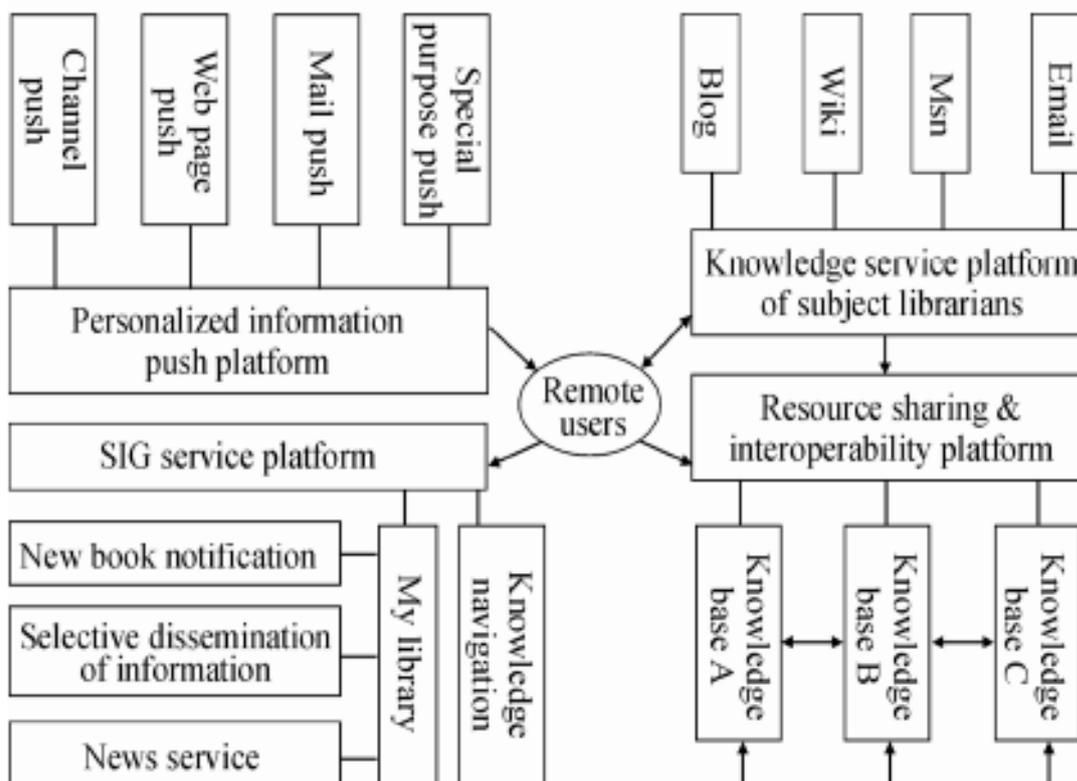


Figure 2. Knowledge service platform of DL in distance education environment

2.4 Conclusion

The literature review shows that knowledge management, having its origin in the business organization can also be applied in the education sector particularly in distance education with a specific focus on the library and information science field. The library being viewed as the “repository” of all human recording since the earliest time when information was stored in tablets and clays, have now been transformed by the changing information and communication technologies. Librarians being then the custodians of these “sacred information” are now also been trained not only in the proper organization of these important resources, but are being geared up to become “portals or gateways” of information for the information seekers. Everything inside the “traditional library” is being developed so that it can cope up with the fast moving world, where information and knowledge are as important as breathing air into one’s system. Furthermore, creating synergy among these relevant concepts could surely assist in leveraging the needs and current conditions of the knowledge-based economy.

CHAPTER 3: **Methodology**

3.1. Introduction

This chapter explains the methodology that was utilized in this research. A discussion of the research philosophy, data collection and analysis methods are included as well as the issues of ethical considerations and trustworthiness of the research..

3.2. Research Paradigm

The philosophical assumption that this research used is coming from an interpretivist standpoint based on a relativist perspective, an ontological belief that reality is socially constructed (Pickard, 2007). Walsham (1993) argued that this epistemological position is concerned with approaches to the understanding of reality and asserting that all such knowledge is necessarily a social construction and thus subjective. There are no “correct and incorrect” theories, instead they should be judged according to how “interesting” they are to the researcher as well as those involved in the same areas (p. 5). To have an epistemological perspective is important because: (1) it can help to clarify issues of research design; and (2) having a knowledge of research philosophy will help the researcher to recognize which designs will work (for a given set of objectives) and which will not (Easterby-Smith, Thorpe and Lowe, 1991).

Furthermore, Merriam (2009) stated that the interpretive research ‘...assumes that reality is socially constructed, there is no single, observable reality...there are multiple realities or interpretations, of single event’ (p. 8). Furthermore, Creswell (2007) opined that the evidence of multiple realities includes the use of multiple quotes based on the actual words of different individuals and presenting different perspectives from different individuals (p. 18). In reality, every person is playing different roles and interprets an event or situation in a particular way or very differently in accordance with the set of meanings they have created.

3.3. Research Design

A qualitative research approach is one of the main approaches of research methodology. It studies experiences, behaviors and attitudes of the research participants. Qualitative methods include for example, interviews, participant observations, and include research strategies as a case study, ethnography, and content analysis. Opposite to the quantitative research approach, it does not use mathematical and statistical methods. However, the qualitative research method uses logic to interpret gathered data. When compared to quantitative research, it has several weak points, for example, it is more expensive and difficult to measure. The qualitative methods are based on smaller sample sizes and are often not representative of the population, which makes it difficult to achieve reliability and validity (Pickard, 2007). Although qualitative study usually cannot be replicated or repeated, which gives it low reliability; the research is more intensive and more flexible, allowing the researcher to search since he or she has greater latitude to do so (Joppe, 2000) which was further argued by Pusaksrikit (2006). Moreover, it can give in-depth detail in some more specific issues than quantitative method. Having research questions that ask “Why” and “How” questions, using qualitative methods will be the best solution to find the answers.

Munhall (2007) viewed qualitative research as a philosophical approach, not a method that arch over many different ways of collecting and analyzing the data while Creswell (2007) discussed that qualitative research begins with assumptions, a worldview, the possible use of a theoretical lens, and the study of research problems inquiring in the meaning individuals or groups ascribe to a social or human problem (p. 53). In addition, Merriam (2009) used Van Maanen definition of qualitative research as “an umbrella term covering an array of interpretive techniques which seek to describe, decode, translate, and otherwise come to terms with the meaning, not the frequency, of certain more or less naturally occurring phenomenon in the social world” (p. 13).

3.3.1. Case Study

A case study is one type of qualitative research strategy. The case study involves an in-depth examination of a single event or multiple events: rather than using large examples and

following a rigid protocol to examine a limited number of variables. It uses many methods to collect information from one or few units such as people or organizations. The borders of the event are not obviously clear at the beginning of the research and no experimental control or management is used. (Yin, 1984; Merriam, 1998)

Research methodologists have mentioned that each research approach has advantages and disadvantages. There is no approach that is more suitable than all others for all purposes. A case study is particularly suitable for certain kinds of problems.

These are main characteristics of case studies categorized by Myers and Avison (2003 as cited by Pusaksrikit, 2006):

- Event is observed in a natural setting.
- Data are collected by many ways.
- One or few units are tested.
- The implication of the unit is examined seriously.
- Case studies are more appropriate for the exploration, classification and hypothesis development phases.
- The researcher should have an open attitude for exploration.
- No experimental controls or management are concerned.
- The researcher may not identify the set of dependent and independent variables before.
- The derived outcomes rely on the combined powers of the researcher.
- Data collection methods can be changed when the researcher develops new hypothesis.
- Case study research is suitable for 'how' and 'why' questions.
- The researchers want to focus on current events.

3.3.2. Single-case vs. Multiple-case Designs

For the aim of the case study design, researchers have to decide to choose one or many cases in the project. Most researchers try to use multiple cases, but single-case is suitable in specific case. Yin (1984) advises single-case designs are appropriate when:

1. It is a case that cannot previously access to scientific investigation.
2. It shows a critical case for testing a well-formulated theory.
3. It is a great or unique case.

Myers and Avison (2002) mentioned that researchers use a single-case study at the beginning of theory generation and late in theory testing. A single case is used for an exploration after that may be followed by a multiple-case study. A single-case design may be used to test the limitations of theory. Furthermore, for multiple-case designs, the multiple cases are useful when the goal of the research is a description, theory building, or theory testing. Multiple-case designs allow researchers do comparative case analysis and the extension of theory. And multiple-case also brings more general research outcomes.

A single case study approach has been chosen for this research to explore one of the existing ODE providers. This provider is fully online and their knowledge management service models and use in their delivery of ODE have been examined.

3.4. Sampling Strategy

The non-probability sampling method was employed in this study, specifically purposive sampling which provides in-depth understanding and extensive information about the experience of the participants on the phenomenon being investigated. According to Pickard (2007) there are two approaches to purposive sampling: —a priori sampling, which establishes a sample framework before sampling begins; and a snowball sampling, which takes an inductive approach to growing‘ the sample as the research progresses (p. 64).

3.5 Data Collection Method

There are many methods of data collection in case study research. Data from two or more sources will help to support the research findings. Yin (1984) suggests the ways to find sources of data collection that work suitably for case study research:

- Documentation
- Archival records

- Interviews
- Direct observation
- Physical artifacts.

The goal of data collection is to gather rich data that suit for the research. Collected specific data depends on the research questions and the part of analysis. Myers and Avison (2002) suggest that the researchers should plan what data they will collect. For example, they should list resources to be gathered such as documentation or they plan for questions to interview. These plans will help researchers when they have to work with other researchers. The goals of this stage are to ensure that researchers can collect data that they want and spend time appropriately.

The interview was a prime data collection method of case study data in this study followed by document analysis.

3.5.1. Interviews

Interviews are conducted with the purpose to draw valuable insights and ideas in the context of the phenomenon being investigated. Pickard (2007) expressed that, —interviews are appropriate when the purpose of the researcher is to gain individual views, beliefs and feelings about a subject, when questions are too complex to be asked in a straightforward way and more depth is required from the answers (p.181). Thus conducting interviews were selected as data collection methods for this research.

A semi-structured interview was used which has sequence of themes to be covered, as well as suggested questions. Kvale (1996) pointed out that openness to changes of sequence and forms of questions, in case of a follow-up based on the answers given by the subjects should also be considered. However, Patton (as cited in Pickard, 2007) describes two approaches to conducting unstructured interviewing: the informal conversation and the general interview guide (commonly called a guided interview). In this study, the guided interview approach was used in order not to lose focus on the phenomenon being investigated. The researcher was also free to explore, probe and ask questions not previously specified when something

stimulating comes out of the conversation.

The interviews conducted in this research involved administrators, library staff and technological specialists of the case study plus one expert in the field of knowledge management. Individual interviews were conducted at the convenient time of the research participants. The two participants from the technical department opted to have the interview done together. All together there were seven (7) participants who willingly shared their time and expertise in this study. Due to their respective schedules, the interview lasted on an average of one hour per participant with their consent for recording the interview sought prior to actual recording. Furthermore, having three different UOC “campuses” in Barcelona posted some restrictions for the number of participants interviewed. It takes about an hour to travel from the Barcelona city center where the two UOC campuses are situated, to the other main campus located at Tibidabo. The interview questions were piloted and communicated to the participants prior to the actual interview.

3.6. Document Analysis

A range of documents were also collected in this case study: organizational strategy documents and documents in the organizational homepage. Document analysis provided background information about the case study institution and helped to interpret interview data.

3.6.1 Data Analysis Methods

Using the interpretivist technique, the simplest analysis of qualitative data is observer impression: Expert or bystander observers examine the data, interpret it via forming an impression and report their impression in a structured and sometimes (quasi-)quantitative form. This attempt to give structure to mere observation is referred to as “coding” and forms an important step beyond the mere observation. (Pickard, 2007; Merriam, 1998, 2009)

Coding is an interpretive technique that seeks to both organize the data and provide a means to introduce the interpretations of it into certain quantitative methods. Analyst are required to read the data and demarcate segments within the emerging codes or concepts. A “code” –

usually a word or short phrase that suggests how the associated data segments inform the research objectives, within the segment being labeled with. When coding is complete, the analyst prepares reports via a mix of: summarizing the prevalence of codes, discussing similarities and differences in related codes across distinct original sources/contexts, or comparing the relationship between one or more codes. (Merriam, 1998)

With regards to the the use of terminology and spelling in verbatim quotes, it has been left unchanged, and therefore varies.

3.7. Ethical Considerations

The rights of the individuals involved in this study and keeping the highest degree of data protection are highly observed in accordance with Tallinn University research regulations.

Prior to the conduct of the interviews, the participants were informed via email about the research project, its aims and procedures and gave their consent to participate. The research participants were informed that their participation in the interview was absolutely voluntary as well as depending on their availability. The participants were also assured that all information obtained would be treated as confidential and only the researcher has the access to it. In addition, codes were used ensuring not to divulge the personal identity of the participants of the study so as to protect anonymity in both recording and the reporting of the research. To ensure the anonymity of the interviewees, we used a coding system for each interviewee like DERP1, DERP 2, DERP 3 . . . DERP7.

3.8. Conclusions

This chapter outlined the philosophical assumptions underpinning this research, described the research strategy and design which have been used to answer the research questions of this study and provided a discussion of the research methods, and justified their use. The ethical considerations undertaken within this research were outlined.

Chapter 4 **Data Presentation and Analysis**

4.1. Introduction

This Chapter deals with the data presentation and analysis. The profile of the interviewees is discussed as well as the interviewees' involvement in the overall management of the operations within the case study environment. This reflects how the knowledge created within the organization individually or through interaction and collaboration (both in the local and national context) is shared and processed, used and repackaged so as not to break the continuum of the spiral process of managing knowledge.

4.1.1 Profile of the Interviewees

There were seven interviewees involved in this study but analyzing their involvement or roles played in their entire employment in OUC. This yielded eleven roles that somehow provided a good representation and a better picture of how things were done in a distance education environment. One interviewee used to be involved in the digital library projects and is now both a lecturer and administrator at the same time. Another interviewee used to be involved in the content management of the library and recently was transferred to the learning technologies department of UOC. There is another interviewee who is both a librarian and administrator. The roles of the interviewees were: three administrators: President's delegate to global affairs, director of research and an assistant librarian; two interviewees were academicians, one serving as a faculty member, who is an expert and the other was a lecturer; Four library support staff: two used to work with the library in the EU projects that concentrated on developing and improving services of the library and is still connect to UOC but are now under different offices, while the two are still much involved in the library operations; four of the interviewees are directly involved in the learning support systems, wherein all of them communicate with faculty and students and support and assist these users in almost all their needs. If there is something worth noticing is that doing research on how to improve the virtual classroom that serves as the "meeting place" of all the stakeholders, has been part of their usual routine, ensuring that all needs are addressed with utmost excellence.

4.2 Background of the Case: Universitat Oberta de Catalunya (UOC)

In the past few years, there has been a growing awareness of the necessity to base education not only on face-to-face interaction between the teacher and the student, but on different educational models that can respond to different needs. A new educational paradigm is being consolidated in Europe, and throughout the world. One that is adapted to a new society, and changeable and diversified in terms of the student's age, activity, economic level, place of residence and personal situation. (Sangra, 2006)

The rapid development of technology impacted the way distance education courses are delivered to students in various locations in an effort to serve the educational needs of growing populations via a variety of media. This is evident when McIsaac and Gunawardena, (1996) mentioned that distance education has evolved from early correspondence education using print-based materials into a worldwide movement using various technologies. The goals of distance education, as an alternative to traditional education, include the offering of degree-granting programs in order to battle illiteracy in developing countries, provide training opportunities for economic growth, and provide a curriculum enrichment in nontraditional educational settings. A variety of technologies have been used as delivery systems to facilitate this learning at a distance.

Specifically, Sangra (2006) further mentioned that Catalonia has a rich tradition of quality, higher-education institutions. And in order to find some past distance education experience in Catalonia, which has its root in the 1930s, when the Mancomunitat de Catalunya created the *Extensió Tècnica Professional*, a classical correspondence education program that focused on vocational studies. The Spanish National Distance University was the sole distance education provider in Catalonia. DERP1 recalled how

the Catalan regional government asked the only state's distance university in Spain to start offering courses in Catalan as well, so it could reach out to the rural areas in Catalunya and give continuous education to professionals here and also second chance seekers in one.. and for political reasons the distance university in state university system could not come with up that..and so the Catalan government said so ok then

we're gonna set up our shop and address our own needs.

A number of conventional universities can be found in the region, but none of them offered any real distance, or virtual, education programs.

Further more, mentioning that the Universitat Oberta de Catalunya (UOC) also known as Open University of Catalonia, was created with the idea of it becoming a global university rooted in a local context. It is a fully accredited distance education university that was established in January 1995 by the Catalan government. Its headquarters are in Barcelona, Spain and it has developed in partnership with key stakeholders in Catalonia, from both the public and private sectors. It was designed to complement the Catalan university system, making university studies available to all members of society who, are restricted to do so due to work, place of residence, age or other personal factors.

The objective of the UOC is to provide the highest quality university education based on distance learning –delivered via the latest information technologies – to Catalan students anywhere in Catalonia and to students throughout the world. Therefore, UOC was created to respond to this new situation and fulfill these new needs. This response is based on a flexible and open educational model, which takes advantage of the possibilities that information society technologies offer, and uses these as support tools.

With regard to the educational services of the conventional universities in Catalonia, the UOC was conceived from the very beginning as an effective and efficient alternative, providing distance higher education with the following characteristics:

- a commitment to being rooted in the cultural, social and linguistic reality of the Catalanian country and open to the world;
- to make knowledge available for everyone, despite time and space constraints;
- a special focus on lifelong learning;
- the use of high-quality and innovative teaching and learning models;
- the intensive application and use of new communication and information technologies;
- a commitment to research and development in the emerging information society;
- serving students and society;
- agreement of cooperation and co-ordination with the Catalanian university system;

- an ethical commitment to society; and
- a new organizational model for a new type of university. (Sangra, 2006)

4.2.1 Structure

The UOC was not organized as a traditional university, but as an e-university that can be agile, flexible, competitive and cooperative all at the same time, and has a vision of the future as an opportunity to innovate and to improve the university system because the condition for its creation was

it will not be a traditional university, a university that exploits the information communication technologies, and secondly the governance structure of the university is a very flexible one. it shall not mirror the traditional residential public universities because structure is very cumbersome, it does not allow to react quickly and a university based on technology that are very fast evolution and change, requires flexibly than other university (DERP1).

Its legal status is that of a non-profit private foundation, with the Catalan government as its main trustee. Other important trustees are key stakeholders in Catalan society, including the Chamber of Commerce, the Savings Bank Consortium, the Catalan Broadcasting Corporation and a number of publishing companies. On the basis of proposals made by the trustees, the Catalan government appoints the university Rector.

This structure was also discussed by DERP1, DERP2 and DERP 6 respectively but DERP6 elaborated more specifically on how such structure provides uniformity in the library resources and services. Their shared information were as follows:

a public foundation was created with participation from the private sector and the public sector, they both put funding for a creation of this university. so you have a public foundation that created a private university (DERP1)”

[being part of a]consortium of the Catalan public universities of Catalonia, although we are “a private [institution created] we are public foundation...private we are considered “in the Catalan area as a public university”...treated as equal to all the public universities (DERP2)

The university, the library belongs to the consortium...We are part of those associations; this is a consortium clearly because we share cost. We start with the collective catalogue, so our catalogue is part of the collect and its affect catalogue and technical issues and so on and the digital library of Catalonia which affects electronic resources. The thing is this belonging to the consortium, it helps, because all libraries in Catalonia we are using the same software. This membership help reduce cost and share resources. It facilitates to provides services and resources [in a broader sense] (DERP6)

The UOC structure is altogether different from the organizational concept and working style of traditional universities. DERP1 stressed that

in terms of physical structure, we're based in Barcelona, we have two villas a block away where we have support services some research offices in one and we have two buildings in the smart district of Barcelona, one that is the exclusive support, one host some Vice rectorate and the research center.

While the UOC is a state university in terms of fees that students pay, it is, at the same time, a private undertaking which needs to be internally organized more as a private company than as a traditional higher-education institution. Figure 3 illustrates the organization structure of UOC (taken from UOC Annual Report, 2005).

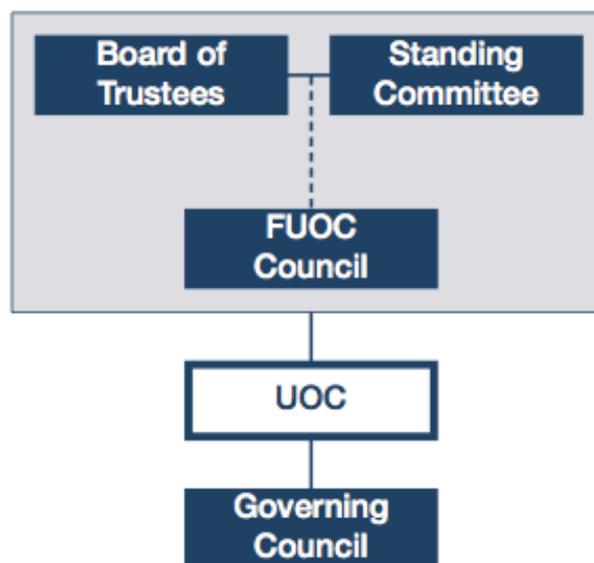


Figure 3. Organization Structure of UOC (taken from the UOC Annual Report, 2005)

Below are some of the description of each governing bodies (UOC Annual Report, 2005)

a) The Board of Trustees is the highest body in the representation, government and administration of the Foundation according to its Statutes. The main functions of the Board of Trustees in regard to the Universitat Oberta de Catalunya are to approve, and if need be to modify, the Norms for the organisation and functioning of the Universitat Oberta de Catalunya, to appoint or to remove the Rector and the Administrator, to approve the Budget and the accounts of the University, to approve the Strategic Plan presented by the Rector and to evaluate its results.

b) The Foundation's Board of Trustees delegates some of its functions to the Standing Committee, which is the permanent body for the administration and management of the Foundation. Its mission is to direct the ordinary affairs of the Foundation.

c) The Board of Trustees is assisted by the FUOC Council, a consultative body of the Foundation, in accordance with an agreement of 28 December 1995, made by the Government of the Generalitat de Catalunya, by which the composition and functions of the Council are approved (Resolution of 8 January 1996).

The function of the FUOC Council is to inform about the budget, the programme, and the appointment of the Rector of the Universitat Oberta de Catalunya.

It is made up by – in addition to the Rector of the UOC and the Director of the FUOC – two representatives from the Catalan Parliament, four representatives from the public universities, two representatives from the employers' associations and two from the trade unions, and various personalities from the fields of research and culture. It is therefore widely representative of Catalonian society, to which the University, given its condition of public service, has the determination and the duty to serve.

d) The internal organisation of the Universitat Oberta de Catalunya has in the Governing Council its highest body of collegiate government, whose function is to guide, plan and evaluate university activity, and to lay down the main lines of action of

the University in all its spheres.

The Rector is the highest authority of the University and holds the maximum responsibility in its representation, government, and administration. The Rector is assisted by the Vice Rectors and the Administrator, whose job is the overseeing of the ordinary management of the University.

4.2.2 Mission and Purpose of UOC

From the UOC website (<http://www.uoc.edu>), the mission of the Universitat Oberta de Catalunya (UOC) is to provide people with lifelong learning and education opportunities. The aim is to help individuals meet their learning needs and provide them with full access to knowledge, above and beyond the usual scheduling and location constraints.

The UOC engages people who offer quality online university education and promote:

- innovative education enabling personalized learning,
- technological leadership that facilitates interaction and collaborative work,
- academic research on the information society and e-learning,
- the dissemination of knowledge.

In addition, the UOC is a cross-cutting Catalan university with a worldwide presence, aware of the diversity of its environment and committed to the capacity of education and culture to effect social change. The UOC fosters cooperation and exchange within its university community and with other universities, institutions, the business community and civil society, whilst at the same time forging international alliances to enable sharing and learning. This is made evident in the numerous partnership and networks to which UOC belongs.

The UOC is committed to the advancement of the following values:

- a) Diversity, in terms of gender, the promotion and acceptance of cultural pluralism, multilingualism to overcome barriers and open work involving different platform technologies.
- b) Participation of the whole community in the university dynamic, promoting

suitable channels for the free expression of ideas and proposals and undertaking the actions required to sustain and improve our activity.

c) Quality, as an institutional culture. The UOC strives to achieve excellence in educational services, educational activity and organizational processes, whilst guaranteeing the academic rigor of its programs.

d) Innovation, as a cross-cutting principle for all of our activities. The UOC is open to innovation in education, technology and the institutional dynamic. At the same time, it promotes entrepreneurial initiatives and encourages the empowerment and creativity of students, faculty and all university employees.

e) Sustainability, as both the basis for the design and construction of university activities and processes and to remain competitive.

f) Cooperation, as an organizational culture based on flexibility and the social commitment to forging institutional bonds based on collaboration, mutual learning and teamwork.

To carry out this mission and purpose, UOC employed the application of a Planning-by-Objectives System. A key element at the time of developing strategic plans is the planning and programming by objectives system, that basically seeks to link in a simple way, using a common format and sharing a single time calendar (the academic year), the strategic challenges to the individual objectives (see Figure 4).



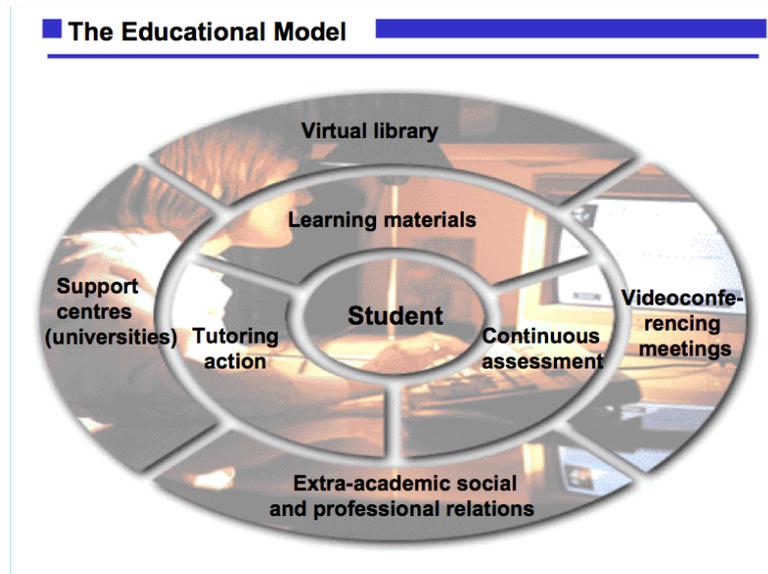
Figure 4. Planning-by-Objectives-System (taken from the UOC 2005 Annual Report)

4.2.3 Educational Model

The UOC's educational model is the university's main feature that has distinguished it since its introduction. It was created with the intention of appropriately responding to the educational needs of people committed to lifelong learning, and to make maximum use of the potential offered by the Web to complete an educational activity. It is based on an innovative teaching and learning system, which encourages students to become part of the university community as a way for them to communicate with others and learn. Students thus acquire knowledge not only through what is taught to them, but also by interacting, working and cooperating with different members of the university community. (Sangra, 2006) DERP1 also confirmed this with the comment

So our classroom model which was originally was student focus is now [not only] student focus but also learning focus. It's no longer teacher centered as residential universities are and most distance education institution are, so we focus on the learning process on the faculty and teacher. focus on student learning process, cooperation among students and the virtual environment and with professors we feel that our system brings too much closer to the professor that the university does, interaction in on a daily basis, we guarantee they get response within 24-48 hours,

True to the commitment of UOC to responding changing education needs of the people they are serving, the model has evolved and reflected these changes. Illustrated in Figures 5 to 7 some of the developments and improvements that took place in the UOC's educational model.



Universitat Oberta de Catalunya's Pedagogical Model.

Figure 5. UOC's pedagogical model (taken from Montalvo, 2005)

Student-centered models give students enough freedom to take advantage of the support offered, so they can plan their learning process and be able to regulate their own working rate. Every element in the pedagogical model is designed to serve students, allowing them to develop their own learning skills. In order to reach this objective, high pedagogical quality and emphasis on personalized support should be taken into account.

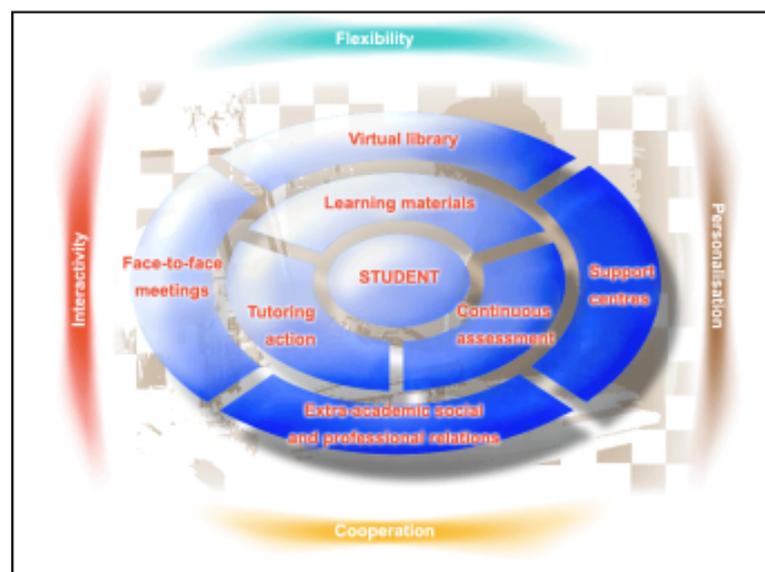


Figure 6. UOC's student centered model (taken from UOC 2005 Annual Report)

It can be noted that a high level of continuous self-assessment for best quality assurance is necessary. As attested by two of the research participants,

our system are pedagogical model which is really UOC unique is not so much technology that is universal available...pedagogical model, from the very start before Bologna we have continuous evaluation of students. so we have adapting to Bologna because it is already in place we give student option of continuous evaluation or exams, final exam. (DERP1). Furthermore, stressing that We have continuous assessment, & usually you asked to have three (3) main activities during the semester & you know the progress of the student, you know when the student is connected into the class, you know the time, you know if the student is reading the post of the teacher in the classroom (DERP2)

In addition, according to Bologna Process specification (June 1999) quality is subject of fundamental mechanisms related with creation of European Area of Higher Education finalized in 2010 which in particular mentioned that:

- "there should be encouragement of a culture of quality within higher education institutions"
- "institutions should be able to demonstrate their quality at home and internationally"
- "the interests of students and other stakeholders such as labor market representatives should be at the forefront of external quality assurance processes"

4.2.3.1 Description of the Innovative Educational Model

The UOC current model is dynamic and flexible. It has been conceived to adapt and evolve constantly in time, as the Internet and society of knowledge evolves. In this regard, it is a model that guarantees that students learn in a similar way to how they work, they communicate with each other and they have fun on the Web. As a result, one of the added values of this model is that it guarantees the digital competences of students.

The courses now are based with activities so instead of focusing on the content you focus on the competencies the students should achieve and which activities you should prepare in order that the student at the end of the subject will achieve these

competencies then you choose which content might the person need in order to grades to that. (DERP2)

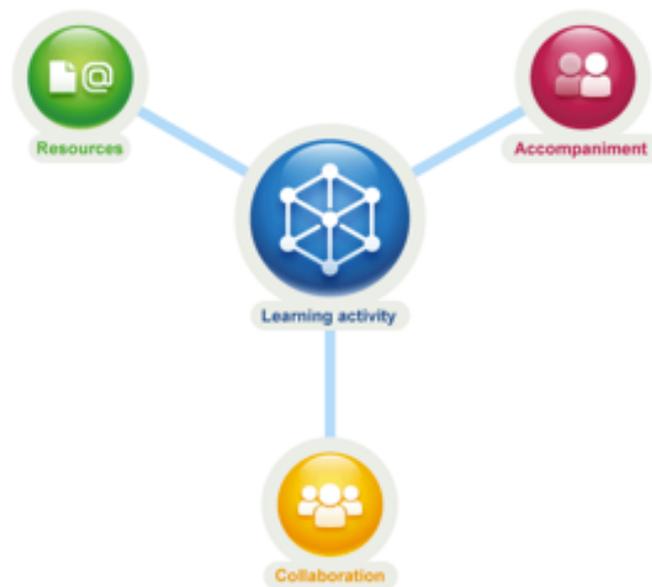


Figure 7. Innovative educational model (UOC Website, 2012)

It is a model that revolves around the design of spaces, resources and dynamics that favored learning. The student and his/her learning activity are at the center of the teaching activity.

The assessment is a perfect strategy integrated in the learning process, in the sense that it is conceived as a mechanism to learn and give reciprocal feedback of this process. That is why we say that UOC assessment is continuous and educational. In this regard, the assessment activities foster the achievement of learning objectives and competence acquisition. In this way, the student can be assessed while doing his/her activity and obtaining competences.

The model is oriented toward collective participation and knowledge building from an interdisciplinary plan and it is open to the students' learning, social and working experience. It is committed to collaborative learning through methodologies that involve resolving problems, project development participation, combined product creation, discussion and inquiry.

The student is accompanied at all times by specialized teaching staff whose main functions are guidance, advice, support and dynamism during the whole educational process. DERP1 supported this when it was said that

We have [in] each area of study a director and each program in turn has a director who has many program directors as many programs we have. program director in charge of designing the program, and contracting the professors who would produce the curriculum, course work. Professors produces course, course work and identity consultants who will be liaising with the students on academic matters.

All of these elements combine and become interrelated in the Virtual Campus of the UOC. The life of the university community takes place in the Campus, and this community is made up of students, teachers, researchers, collaborators and administrators. The student has access to the virtual classrooms through the Campus. The classrooms are learning spaces where the teachers, classmates, content, activities and communication tools necessary for studying and learning can be found. DERP1 described this virtual campus as *"Our own platform, we developed [the] software which allows, you know Moodle-like, combine different features from others and create a system that is not tied-down to any other platform. Used from the very beginning that is improved through the years."*

Looking deeper into the learning activity whereby it is now the central figure of the educational model. The students have three main elements with which to complete it: the resources, collaboration and accompaniment. (UOC Website, 2012)

The resources: They include the content, spaces and tools necessary to carry out the learning activities and their assessment.

Collaboration: This is understood as the set of communicative and participative dynamics that favor the combined building of knowledge among classmates and teachers, through teamwork to solve problems, develop projects and group product creation.

Accompaniment: This is the group of actions carried out by teaching staff to monitor students and to give them support in planning their work, in resolving activities, in assessment and in making decisions. At the same time, the student receives personalized treatment from teacher accompaniment, s/he enjoys continuous guidance during his/her academic path and s/he establishes relations and communication with the educational community.

4.3 Learning Resources

Based on the educational model, the following range of resources are available to students so as to enable them to follow every subject in optimal conditions:

- Counselors offer students personalized guidance.
- Tutors ensure progress in each subject. DERP1 mentioned that we have three types [of tutors]: Tutor that receives the students, new students in the university and tells them how it all works. once that is done the class begins there's another tutor who follows the student throughout the university, entire career and the system technical problems they might have and once they leave the university, we assign another tutor that will be liaising with them and try to bring back to study, so on and so forth.
- Subject study plans define work methodologies and assessment criteria as attested by DERP2 when she said that usually you asked to have 3 main activities during the semester & you know the progress of the student, you know when the student is connected into the class, you know the time, you know if the student is reading the post of the teacher in the classroom.
- Continuous assessment ensures academic progress and that students make the most of courses. This was also expressed by DERP1 and DERP2 as our system are pedagogical model which is really UOC unique is not so much technology that is universal available...pedagogical model, from the very start before Bologna we have continuous evaluation of students. so we have adapting to Bologna because it is already in place we give student option of continuous evaluation or exams, final exam. (DERP1). Furthermore, the courses now are based with activities so instead of focusing on the content you focus on the competencies the students should achieve and which activities you should prepare in order that the student at the end of the subject will achieve these competencies then you choose which content might the person need in order to grades to that. (DERP2)
- The Virtual Campus allows interaction with the whole university community.

- Multimedia teaching materials complement those specific to each subject. DERP1 talked about having
 - media support for the courses, not media based. mainly distance courses, online university what they do teaches they say via the Internet satellite teaching and what they do transmit the lectures so it can be interactive but then with you are forcing the students to be in one place so they can receive the signal in one satellite at one time. You still have various ways, ours is time[bound as it] is [considered] very important. The trend moves towards the internet. So as many institution they serve distance learning filled lectures, radio instructions or even cellular programs, we do not. We do use videos for class as you would for bibliographic readings, ok these are supplementary readings, here are some of the lectures you might be interested in. Just as resource materials
- The Virtual Library offers access to all information resources. DERP6 shared that “*So the library is the virtual references services...the students and all users can use it because here we don’t have different library for researchers, authors, students or management staff its all the same.*” In addition she stated that
 - we have physical books and nursery books. then we have journals, articles and also websites that are open. We have also open resources. so Yes they can be subscribe to and they can be open. They can be Paper, if not paper can also be digital, so yes books as well.
- Services for the university community include activities and benefits.
- Support centers provide personalized attention and study resources. DERP5 mentioned how “*it is compulsory to have a recommended bibliography in all the subjects [before the start of the classes]...which is usually comprised of minimum 2-3 digital resources, and 2 or 3 books* in compliance with the Spanish accreditation for quality standards.

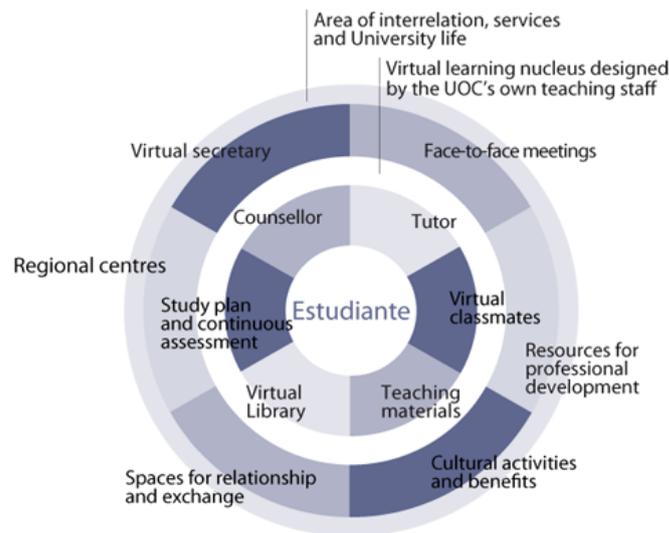


Figure 8. UOC Range of learning resources (UOC Marketing Material, 2006)

4.3.1 Access and Support Services

From the UOC Library website, it described the Virtual Library as part of the UOC's educational model and is one of the most important support services for learning, teaching, research and administration which the University places at your disposal over the Virtual Campus. DERP6 stressed that *“when we talk about the virtual library for us the library is our website. Because as you can see in this building we don't even have books, the services are all virtual services so it's important to bear in mind”*

DERP1 shared that *“we have virtual library that is considered reference, worldwide or e-libraries while DERP2 viewed it not something like a machine like a server, upload “download”...they are providing service, because they are suggesting new things, they are, also the materials how it is put in the virtual classroom is well structured, they put a summary or abstract, I mean they are elaborating the it's not like uploading because they apply metadata.* DERP6 stressed an important point about such collaboration, *”Because we [the library] are part of the university, we are involved in strategic planning... Its not something that is apart”* which is also reflected in how they carry out the library support services for the university.

4.3.2 Personalized Services

Taking advantage of the technological possibilities provided by the campus, the Library does not simply have a central virtual space but it enters the Class, the teaching, research and even leisure areas to provide a universe of knowledge on a range of media related to your work.

DERP3 attested to this central virtual space that the library is part of when he said

System is with the library...[it's]the library who manages the resources we work [technical learning support] with more pilot projects and we call it classroom tools, blogs, wikis, tools...halfway between learning resources but can be too [considered as] a communication tools. A wiki for example can be a learning resource but can be a communication tool. The learning resources, the traditional learning resources like books are in the virtual library.

There are various basic sources with which student can consult and reach the library:

- The Catalogue and the Digital Collection. The Catalogue includes both physical format documents: books, journals, videos, CD-ROM, CD-I, etc., and electronic and digital documents, which you can access straight from the bibliographic record. In addition access to other catalogues from around the world can be provided.
- Among many other information resources, the Digital Collection contains specialist full-text databases and electronic journals on a great range of subjects. With highlight on the specialization in the Information and Knowledge Society as a fundamental subject in the work of the University.
- Use a global search engine to find the information in the entire Library, regardless of where it is precisely.
- In the Class, there are also a series of specialist resources and services in each subject, which will be of great interest for in achieving the learning goals.

As a complement to all of this information, the Virtual Library offers a lending service, own and external document supply service, bibliographical information, documentary searches and a range of customized services which will facilitate, complement and allow to carrying out of

work easily and efficiently. DERP6 described the process wherein she should how having a unique user profile can provide access to all the components of the site, including resources and services that are customized and anticipated in support of their educational needs.

4.4. Collaborations/Networks

Although it is part of the Spanish Kingdom, Catalonia has an autonomous government, the Generalitat de Catalunya. With a different language – Catalan – and different cultural traditions, Catalonia is a diverse and welcoming society.

Far from presenting a problem, Catalonia's two languages (Catalan and Spanish) are spoken by the majority of Catalan people. As a result of migratory movements, many people from different Spanish regions live in Catalonia and are fully integrated. Catalan is understood by 99 per cent of the region's population and 100 per cent can speak Spanish. (Sangra, 2006)

In 2000, the UOC started focusing its services on the national market (Spain) and then expanded them to the international Hispanic market. Finally, in an attempt to fully carry out its global vocation, the UOC's next step is to enter the international space of other languages. In line with this, the UOC is a member of different international associations and participates in several international forums, contributing from its experience to broaden the knowledge about how virtual teaching and research universities could be, or should be, managed. Some of UOC's affiliation are with the ICDE (International Council of Distance Education), European Distance Education Network, Centro Internacional de Desarrollo Universitario and the Latin American Network for Distance Education. In addition, the UOC belongs to all the Spanish associations, networks and consortia related to its activities.

Aside from these affiliations, DERP1 specifically mentioned the partnership with the residential universities through hiring consultants,

We hire more consultants as more classrooms are created. And most of our part time faculty is faculty that works at residential universities. We hire them through the University not direct, we have agreements with residential university, their responsible for paying the professors for working with us so it really we are giving the residential

university training on online teaching by hiring professionals in the field and we in turn our hiring experts of faculty from residential university.

While DERP6 talked about internal connections and teamwork

it's very important to learn that you have daily responsibility at the same time medium term objectives that is an annual basis and you need to do both things.. why is this important, because..of course we are very busy.. if we don't work with objectives then we isolate and we close ourselves in our daily activities. It's a questions that we are in a university we work with students we plan and sets objectives annually we are faculties. Now when we define objectives everybody is responsible for 1 or 2 objectives and they are never done alone so we work in teams, not possible to be done alone.

The same view was attested by DERP5, *"We are all together, working together. We are all involve in planning, development, implementation and evaluation of the library...all of us have like a little part of responsibility and also involvement "*

4.5 Views on Knowledge management, distance education and digital library

When asked about how they perceived the three concepts, the answers were almost similar. For KM, what emerged was the common thought about how information is managed and utilized so as to come up with a sound decision for whatever task you have at hand. Also having the right format for the right person at the right time can only be maximized and facilitated through the awareness of the use of appropriate tools which are in their disposal. Regarding the distance education view of the interviewees shared how such mode of education can fit "comfortably" in the hectic routine way of people's lives who seek to continue their quest for educational pursuit. Lastly, regarding the digital library, it is perceived to be what it is already in the real life and how the available resources in print and online is already incorporated in the virtual classroom.

4.5.1 Knowledge management

DERP7 viewed KM in the light of the tacit and explicit knowledge and having that right knowledge at the right place in the right time for the right people. His other thoughts were:

as some kind of integration of experience, reflection of different sources of information and in this sense I would say that the main thing in KM to understand of that knowledge, you can have excellent knowledge you have right format of presenting knowledge at the right place in the right time”. Adding also that in layman’s term, ”if a person is involve in some action, if certain information is made available for the person in this format but it is easy reusable, if it is made available at the right time and in right sequence maybe if there is need to provide certain steps then we have knowledge as the object of knowledge management. KM tries to help people to share information and get access to that information such way that information is combined by making good interplay between tacit and explicit knowledge again these are terms which are not easy if I have to explain tacit or explicit knowledge I would usually use the example of riding a bicycle at very few people would be able to help their kids to learn how to ride a bicycle simply by writing a manual so even if they know how to ride the bicycle even if the kids are able to learn or read the manual but its very difficult to make such a experience based knowledge explicit by making very good manual to help people to learn riding bicycle maybe that is explicit and tacit knowledge, but for me librarians are great people because I understand great deal at least in traditional sense, they deal with explicit knowledge because otherwise you cant make good catalogue or make clearly difference between different categories.

On the other hand DERP2 shared her understanding as of KM

the way that information should be organized in order to be accessible for anyone at the university that needs a specific moment or for the responsibility that is developing a particular information, we should ha[ve] a workflow at the university in order that all inputs of...for instance what i see when we go to a meeting to some place, sometimes we have notes and that we transmit to our superiors or our peers, in order to be aware, these information needs [to be] stored in our internal network but it's not available for any other, unless I send by email and I think we are doing a very strong use of the email and it's not really appropriate channel for arriving this type of information and if that was stored in a database could reach the information [destination] short way for somebody that just need to be aware that the meeting has been done or with a little summary and just that could “be very” easily be done. At the same time I make the

notes, I just could underline or what is the summary or in order to separate the different “types of” people that should be aware of that..we are not “doing a proper, we are not” applying proper model of KM.

Similarly, DERP5 perceived KM as a

way to organize all the information, or not information because knowledge is different, I think information is something dynamic and knowledge is the ideas that you get through the information. So there is a reflective results as result of information. So I think information Knowledge management will be that all human, all this knowledge that there is, for example in the classroom or in the forum or in the material the resources there, there is knowledge and there is information. So if you can manage this, to access to the real knowledge.

4.5.2 Distance education

DERP5 described distance education as

the kind of education we have here at work because we don't know anything different well. Maybe from our experience because I used to study in a face to face university. But from here I'm working here work here 6 years ago distance education is normal for me it's a way to access to education When you need it in your spare time and free time so for students it's more comfortable for them for their situation and you are 365 days open for them so if they need something that came in your email your available always, in face to face or university you have times you have to be there, and for administration or reception you have to be there before eight, otherwise they are closed and here we are open always. So for me distance education is an education...[that is sort of] an adaptation for the student..[one that] fits one's study life.

Specifically such asynchronous philosophy employed by the university was also mentioned by DERP1, when he mentioned that

we have to ask student to walk into the classroom virtually at anytime they want not be forced to connect at a specific time and so that really make a big difference with respect to other experience that tested in time and many now are asynchronous connection in terms of student

being able to participate n the professors and even if they live in other time zone. we overcame the barrier with asynchronous system.

On the contrary, DERP7 has some reservations on the open and distance education,

Open education for me is a tricky concept.. It is still young.. educational laws and standards...work experience and through their learning.. it can be taken into consideration giving academic.. we can say that there is a principle an element of open, if we say non degree learning is open education and the student we have laws and practices that enable open education exercises validate as academic degrees. There are procedures and there are some students they have experience or some certificate or training that already starting marketing or something.. it depends on the course if its transfer or not.. but distance education here we have to take in consideration that we have different approach one is that 100% distance education all courses online. People who are splendid learning and part of learning is face to face and part of learning”

4.5.3 Digital library

When asked about the concept of digital library DERP5 perceived it in the real life as:

[something] good and is the future because even in the university the face to face library they have a kind of documentation, digital documentation, paper documentation and they have library normal library and also digital library. So the trend is going to digital library. That is from my point of view because at least here all the libraries have also the digital version, they have webs and all the resources available there, databases so I think it's the future. They based it on the future.

Likewise, DERP2 considered their virtual classroom as a digital library.

At the beginning, the classroom had a what they call library shelf, it [contains] the readings that is a specific part of the library. I wonder if all the lecturer know that, I know because I was working in the library and I know those materials comes from the database.

4.6 Future directions

There are some future directions that the interviewees mentioned during the exchanges of

knowledge: existence of more fully online universities, the move to open education resources, KM initiatives can be led by different people in an organization, how the librarians should position themselves in this changing world and the deminishing boundary between business and non-business organization's services.

4.6.1 Fully online universities

Looking towards the future, DERP1 shared about a

certain study conducted by Standford, Wired magazine that says [in] 2050, there will be 10 residential universities, only 10 [will] exist and the rest will be online. Makes a lot of sense because residential universities are not sustainable anymore, areas in countries India, China, and others would lead to a response to a higher mandate are not [yet] in a position to respond to changes and [hire] new trained staff. The only way they can do that is by going online. Student system, self teaching now has to be truly online. We'll also thought that the future was blended teaching is a very brief transition to fully online and very interesting, content in Africa where you can draw parallel with the telecommunications. Africa actually skipped one track in telecommunication, mobile system. Almost everybody in Africa has mobile. Likewise i think we'll be doing the transition to higher education virtually skipping the residential phase and going straight to a virtual phase

4.6.2 Open Educational Resources

In terms of the learning resources and content creation, due to issues of availability, copyrights and language constraints, DERP2 voiced out that the arrival growing fame of the open education resources,

we try from the institutional [level] to promote this open practices, now we have the open repository and for instance now are thinking about the possibility to be involved with the open educational resources of the university. So, every little by little I think we will tend to that and then we have the open course initiate there all the materials are open educational. And if its open educational resources usually its more like that people thinking about it keeping it to their competencies and finding after which

material is available instead of thinking what are you going to write and then the material is there.

4.6.3 Taking the KM lead

DERP7 expressed his thoughts that regarding who should take the lead for KM initiatives *in [a] knowledge based economy we can only have rare participate management if we have full knowledge management system otherwise we can played democracy but there is no informed decision making without KM. Further expressing that "in does not make sense to have a some Vice-President or Vice Director for KM, [in some cases] the human resource manager or personnel manager could be leader of KM development, maybe in other organization here, [the] quality manager could be the leader.. in others, it could be marketing manager.. But they should learn, broader their horizons and approaches. ..It helps to be focused on core patterns which means organization can be more knowledge based.[where] its value should not just depend on balance sheets but in intellectual capital.. but I will prefer core competence [of people], unique core competences.*

4.6.4 Librarians' role

It has been mentioned during one the conversations that *"KM thinking is one way to empower librarians and people who [wanted to]start [becoming] librarians"* with emphasis on the librarians' role, *"librarian work will be one function of KM... librarians could be some kind of gate keepers helping them trace new trends.. or librarians are not ready for such role. Challenge on how to become librarian.. how to reposition yourself for some kind of knowledge adviser or information consultant.. knowledge specialist (DERP7)"*

DERP5 mentioned also about the connection with the faculty members

This is a collaboration of library and faculty, because if you work together you can avoid problems and to be working in the same thing with same deadline and everything can be easier. Sometimes when you are in one part and the other one is in the other one the contrary is the communication i think one of the clues is the collaboration between

faculty and library for the knowledge management and all these sharing the resources this is one of the clue..the other one is having good tools and useful tools.

4.6.5 Diminishing borderline between business and non-business organizations

In terms of existing knowledge based applications available in smart phones, tablets and other devices, DRPR7 shared his view that

[one thing] Changing in our world is [the] border line between business and non business is becoming cleared..for instance android application I am very surprised how many application you can buy for very cheap money and even free of charge.. and lot of people [in] certain communities, they offer some products free. One day they hope by this free [offerings] they can still making some money.. such model of business for share then you sell it and make money and they second share... it's not very modern anymore. Facebook also started as non business.. this business development process direction maybe there is no so much KM in organization but communities, which crosses organization borders.

4.7 Conclusion

This development in technological innovations, in some cases, allow distance education programs to provide customized and specialized courses to students in remote geographic areas with increasing interactivity between the student and the teacher. Although the ways in which distance education is implemented differ markedly from country to country, most distance learning programs rely on technologies that are either already in place or are being considered because of their cost effectiveness. Further more, programs such as these, are particularly beneficial for people who are restrained financially, physically, or geographically to obtain a traditional education. (McIsaac and Gunawardena, 1996)

The documents, printed and online, coupled with the personal interviews yielded an impression that knowledge created with the ODE provider's organization is truly embedded in the "veins" of the research participants. The knowledge is shared, expressed externally and yet internalized because of the almost uniform answered they have shared. Such experience

gave a better overview of how an ODE provider operating in a purely virtual sense, made use of available ICT tools to form a unique organizational culture that is essential to the success of the any organization playing in the educational arena.

Chapter 5 Summary and Conclusions

5.1. Introduction

This research study aimed 1) to present the aspects that can help create and sustain successful knowledge work management; 2) to provide the utilization of knowledge management for the provider of ODE; 3) to analyze problems and how the ODE providers of library services could handle these problems.

This chapter provides answers on the general research questions, how the responses addressed the queries posted in this study and implications based on the objectives were also provided.

5.2 Conclusions from the Research Questions

5.2.1 Research Question No.1

To what extent are ODE institutions involved in the knowledge management processes?

ODE providers have not admitted their visible involvement in the formal knowledge management process but the findings show that in their experience they have effectively made use of some KM strategies throughout the existence of the university.

Codification and Personalization

In terms of the resources and services, the codification and personalization strategy was observed in the following:

- Involvement of all members of the organization in the strategic planning of the University and aligning their departments' objectives and goals of the bigger community they are part of.
- Documentation of the ODE provider in terms of data accumulated, publication of strategic planning reports and accomplishments in print and online via the virtual campus and the governing refer to this information and use these in the development and improvement of their educational delivery. In addition, such heavy reliance of

ODE providers to information technology allows maximum gain from the explicit knowledge that is available within the organization.

- Such codification came from the need of faculty members seeking assistance from the learning technologies department to customize their classroom using enhanced tool for interaction and learning process.
- Specific assignment of people to closely monitor student progress, such use employing tutor, program director and consultants who works hand in hand with each other throughout the whole duration of a student life in the university.
- Personalized support and training needs packages for faculty, staff and students is evident well structured classroom plus the assignment of subject specialists in both the library side and technological innovation that support both teaching and learning. This is evident library side when the suggestions of related, readily available materials be used in the classroom while permission to use copyrighted materials is underway, including summary or abstract of resources to assist decision making of faculty members for the inclusion of these materials in the reading lists of courses.

Combination of tools and techniques

- In-house platform that is continuous developed, maintained and improved vis a vis results of researches on user needs, user experience design and pilot testing and runs of innovations and new technological tools.
- Incorporation of tools like email blogs, forum, route maps, wikis, online databases, links to supplementary readings, shared calendars in the virtual classroom is one manifestation that the University supported collaborative work and promotes interaction among individuals within the community where knowledge creation and sharing is a welcome occurrence.
- Subscriptions to information portals for library collection that enables institutions to provide their patrons with access to information resources such as catalogs, reference databases, citation databases, subject gateways, and e-journals.
- Tutorials and small video clips on different university developments are created to somehow include a personal touch in ensuring that new tools and services are shared and disseminated properly.

5.2.2 Research Question No.2

How do the providers of ODE use knowledge management to gain competitive advantage?

The findings of this research showed that even if knowledge management is not explicitly acknowledge and utilized as a strategy to gain competitive advantage in the distance education environment, how they operate, provide service and commitment to quality education illustrated that there is no need to have a separate knowledge management department to gain competitive advantage.

These were the ways they use knowledge to continuous assure provision of excellent programs and services under these five elements where KM can enhance learning of students.

Community belonging was observed in:

- The university's conception beginnings, where the condition that it should not be like a traditional university, instead exploit the use of information and communication technologies and has flexible governance structure is the top priorities.
- A very clear exhibition of how each and every stakeholders affirmation, that being part of a bigger community, being able to contributed to the development of their own people is an important mindset that allows growth as well as keeping roots well checked.
- Awareness that even if the university operates on a totally different platform, recognizing that the university as a whole is part of a bigger community inspires all the stakeholders in sharing lessons and achievements not to boast but to assist other universities in ensuring good quality education is delivered to their constituents and beyond.
- Maintaining the community through tapping the potentials of alumni in serving as mentors for new students and served as liason to the university is another practice that expands the reach of the university.

Collaboration

- The recognition of the library being part of the university's support system in by aligning its resources and activities to the overall strategic plans of the university as

whole and it's involvement in the teaching and learning process through the explicit presence in the virtual classroom in both teacher and student interface. The proof of which is the evolving educational model that serves are guiding principle of the university

- There is a regular mechanism that creates awareness and allows exchange of ideas between and among stakeholders through collaborative work and involvement in projects that would ensure continuous and stable support to both teachers and students. Such mechanism include but is not limited to weekly meetings, ongoing researches on pilot projects of new classroom tools and user needs, membership in local and international associations and networks thereby keeping abreast of current trends and development in the field.
- Through entailing a certain amount of money, some of the resources and services that can be outsourced are explored so that the routine tasks are unloaded from the main collaborators and focus more on the management and improvement of current system becomes the priority. It is important for the these collaborators to focus on the “added value services”

Knowledge sharing and trust is manifested through

- Development of new courses and programs are conceptualized on the condition that there is no duplication of offerings within the country but that case university serving as virtual platform for the existing residential universities. The university system has to identify the best program offered by the university and eliminate duplication by helping each other. It is done through involving some local experts to serve as part-time faculty members and in training them allows expansion in resources and services. In this way, though it may appear to be that the trend is more of the generation in this information age will opt to study via distance education mode, such partnership somehow also prepares the other universities when the inevitable move happens in the future, i.e. the quest for higher education skips the residential phase and move straight to the virtual phase.
- Administrators are aware of the diverse culture and personality of each member of the university teams but knowing that the right information and knowledge is properly disseminated through interactions and accurate information dissemination within

departments and publicly, trust is given that through teamwork the goals will be achieved.

- Communication channels and other tools to transfer such information or knowledge are highly regarded to be important “devices” that are incorporated not only to the daily work routine of employees but in the virtual classrooms as well. These include email, phone, forums, blogs, wikis, shared calendar, route maps etc.
- When there is shared knowledge, the teacher and student builds a certain rapport and trust that enables monitoring and evaluation of progress easier.

Shared understanding

- The information found in the website of the university plus those published in printed and online documents that were gathered were almost similar to what the research participants shared, thus the impression is that there is a common ground among all the members of the university, be it at the top level management or in the grassroots, where all of them have a common understanding and same meaning of what they are suppose to do, how they are to perform their duties and task and where they want the university to move ahead. It’s going to show knowledge created in the organization are truly shared and processed in the different departments which in turn transferred to the target users.
- In the same manner, how they strategically put themselves in the educational arena, is reflected at how the virtual classroom is organized and continuously developed through the integration of features that is a result of the needs assessment and knowing the trend and available tools appropriate to address that need.
- Putting the priority to improving access to the virtual classroom through different devices also align the university with what their clients have at their disposal i.e. being able to log-in anywhere, anytime through mobile devices, smart phone and tablets irregardless of operating systems.

5.2.3 Research Question No.3

What are problems and barriers that ODE providers anticipate during implementing knowledge management?

Some of the problems and barriers that were identified in the study include:

- The inevitable move to a more online or virtual universities to which can be bridged through partnership and linkages with residential universities and international organizations plus the dwindling budget allocation from the government that hinders improvement and development of better resources and services supporting teaching and learning process in the distance education environment.
- Cultural barrier which is more or less focused on the language to be considered in the offering of programs and degrees and these can be addressed by the continuous research that the ODE provider should undertake regularly.
- Maintenance of virtual multilingual environments for the diversified clientele is time consuming in terms of translation, ensuring uniform information is delivered and made available, providing more options to students and smooth transitions from one environment to the other and being able to link the profile with the right privileges and options for learning.
- Creating unified platform that will allow seamless transfer from one tool to another within the virtual classroom since at the moment each link inside the classroom will take the student to different interfaces and as such navigation becomes complex rather than simple.
- Funding and human resources limitations

5.3 Implications

The results of the study illustrated that even though knowledge management is not explicitly and formally a part of the ODE provider organizational structure, i.e. no knowledge management department, the experiences and practices set in place is a manifestation of how knowledge is a highly valued asset. Positioning the learning activity at the center of the educational model is a strategy that guided the organization in ensuring that the virtual classroom where learning takes place is responding effectively and efficiently. Likewise, the educational model being flexible and continuously evolving is an indication that the ODE provider is making every effort to adjust to what is happening outside the virtual world.

In the same way, being a part of a larger community in the local and national context expands not only the connections and network of the ODE provider but also provided opportunities to

enhance the delivery of resources and services at all levels of interactions within and outside of the organization. Furthermore, it can also be deduced that workflow within department and in the whole organization is structured in a way that everyone knew the main focus and goals of the institution.

There is no such thing as one size fit all initiative that can ensure that the same initiative can work in another ODE provider thus it is suggested that further studies on the the following areas be conducted:

- Impact assessment of the learning resources in the student's learning process
- Comparative best practices analysis of open and distance providers which can serve as framework for organizations thinking of moving from residential to online educational institution
- Will the integration of a digital library in a virtual university enhance teaching and learning in the distance education environment?
- In-depth look at the knowledge service model for digital library application in the distance education environment
- Effectiveness of virtual/digital library in the distance education context in the light of knowledge management
- Measuring the impact of the technological innovation and tools in the teaching and learning processes
- Role of distance education and knowledge management in a nation's development.
- Is distance education the appropriate delivery mode to foster lifelong learning in this digital age?

The current research has shed light on the how knowledge management strategies can indirectly and directly affect the operations and delivery of resources and services in a distance education environment even if such KM initiative is not labeled as such. In as much as the focus is student learning's process, providers of ODE are also learning in the whole process of ensuring that a high quality of education is delivered via distance mode. Hence, there is a great potential that KM will not only becomes a leveraging tool for teaching and learning in a DE context, but it also places the organization in an advantageous position in the educational arena.

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Appendix A

Interview Questions for ODE Providers

- 1) What is your idea about Knowledge management, Distance education and Digital Library? In your experience is there a connection among these terms that you have encountered in this university? How are they made “alive” in this institution?

- 2) How is your involvement in the delivery of library resources and services? Can you briefly describe the process from planning, development, implementation and evaluation?

- 3) Describe the current set-up of the delivery of library resources and services in terms of collection coverage, services offered, mode of delivery, database and platforms employed by the library

- 4) Who are the point persons involved in the selection and acquisition of library resources? Are faculty member involved in this process? What contributions do they provide and how has this contribution impact the library resources and services offered? Is the library policies comprehensive enough to reflect the relationship or is not necessary from your point of view?

- 5) How is the system of organization of library resources and services done in the UOC Library? Is there a central server, various databases, internal network or even an integrated library management system that coordinates everything? How do people work with each other in ensuring that the system supports the objectives of the institution?

- 6) How is the actual interaction of student and library staff? When does it usually occurs and what transpire during such interaction? Can you describe an instance when it was a simple addressing of needs and when things get complicated, how does one handle such need?

- 7) Is there a feedback mechanism that allows students and other members of the community to contribute to the improvement, retention/removal of services that deemed unimportant to the learning process? How are these feedback processed, managed and incorporated in the library system for further discussion and deliberation?

8) From your experience, which among all the library resources and services are mostly important in supporting the academic needs of the constituents of the university. Please explain such selection. Do you think going fully digital is truly the way to go to bridge the gap of time and distance that hinder pursuit of lifelong learning? Share your experience of a success story.

9) Are there problems or barriers that you have encountered in the provision of library resources and services in the distance environment? Share why you think of it as a problem/barrier. How did you address these issues?

10) What management practices do you think a distance education provider should employ to ensure that the provision of library resources and services becomes one of its competitive advantages among other ODE providers?

*Note: similar questions were asked to the non-library staff and expert.

Appendix B
 Concept map

