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KWAZULU-NATAL

INYUVESI
YAKWAZULU-NATALI

**IMPLEMENTATION AND ADMINISTRATION OF AN INTEGRATED
LIBRARY MANAGEMENT SYSTEM IN ACADEMIC LIBRARIES IN
KWAZULU NATAL**

By

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DECLARATION

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DEDICATION

This thesis is dedicated to my late mother and father Ntombizodwa Getrude and Christopher Sithole, who will always have a special place in my heart

I wish you lived long enough to see me progress and be the person you wanted me to be (I will always love you).

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ABSTRACT

This study examined the Implementation and Administration of Integrated Library Management System (ILMS) in three academic libraries in KwaZulu - Natal from the perspectives of Librarians, Systems Librarians, Library Management and Universal Knowledge Software (UKS) who were the vendors of the ILMS. The study conducted biographical sketches of all the participants who were interviewed. The purpose of this was to establish who the participants were, how long they have worked in the library, what modules they were using, and lastly establishing what type of challenges and experiences they have encountered during the implementation of the ILMS.

In this study interview schedules questions were compiled with specific questions related to the ILMS. The population of the study consisted of 20 staff members, which consisted of 12 Librarians, three System Librarians, three Library Management and two UKS staff members. All 20 staff members were interviewed as they were all involved during the implementation of the system. The intention of the study was to measure what motivated the change to the ILMS, to establish problems and challenges related to the change, and lastly to evaluate if the change added any value to the staff members in terms of improving efficient and effective service delivery to library users. The results of the study as well as lessons learned will be used to map the future of ILMS, assist other institutions who wants to engage on the similar study, and identify gaps in the study as most institutions have currently moved to Cloud Based Computing.

The interviews were conducted with participants in various institutions and appointments were scheduled with participants and permission to conduct interviews was granted by all the participating institutions. The research method used for this study was the qualitative research method. The results were analyzed based on the responses from the Interviews conducted. Based on the evidence from the interviews it is recommended that library management must play an active role regarding improving the implementation and administration of an ILMS. They must ensure that all staff members are on board with the new system, and that they embrace change and they must be involved throughout the planning process. There must also be adequate resources available to solve problems related to ICT infrastructure, downtime, bandwidth and turnaround time must be improved to ensure efficient

service delivery. To ensure that the implementation of the ILMS has been achieved the following strategies must be employed:

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LIST OF ABBREVIATIONS AND ACRONYMS

ALA	:	American Library Association
API	:	Application Programme Interface
ASP	:	Application Service Provider
DIT	:	Durban Institute of Technology
DUT	:	Durban university of Technology
esAL	:	Eastern Seaboard Association of Libraries
EsaTI	:	Eastern Seaboard Association of Tertiary Institutions
ESP	:	Esal System Project
FRELICO	:	Free State Library and Information Consortium
GAELIC	:	Gauteng and Environs Consortium
GUI	:	Geographical User Interface
HIM	:	Horizon Integrated System
HSRC	:	Human Science Research Council
ICT	:	Information Communication Technology
ILMS	:	Integrated Library Management System
ILS	:	Integrated Library System
ISBD	:	International Standard Bibliographic Description
IT	:	Information Technology
KZN	:	KwaZulu-Natal
LAN	:	Local Area Network
MARC	:	Machine Readable Cataloguing
MOA	:	Memorandum of Agreement
MUT	:	Mangosuthu University of Technology
OPAC	:	On-Line-Public-Access-Catalogue

PUC	:	Physical Union Catalogue
RDA	:	Resource Description and Access
SMS	:	Short Message Services
SPARC	:	Scholarly Publishing and Academic Resource Coalition
UCMS	:	Unicorn Collection Management Systems
UKS	:	Universal Knowledge Software
UKZN	:	University of KwaZulu-Natal
UniZul	:	University of Zululand

Chapter One

INTRODUCTION

1. 1 Introduction

The significant technological developments in libraries have led to the introduction of the ILMS and on-line catalogues that are able to provide access to catalogue information in library collections using an internet connection from anywhere (Holmberg, 2009). These developments have, generally, positively affected both librarians and library users. The concept of academic libraries being just a storehouse of books changed when much of the visibility of the library collection was on the screen (Wallis, 2007). Academic libraries are gateways to global information networks and are central to providing information to meet the needs of users so it is essential that they invest in systems that support the latest technological applications. According to Wrosch (2007) academic libraries provide a robust research and curriculum support environment that requires a suite of systems to work together, such as with an ILMS.

Kochtanek and Matthews (2002) define an ILMS as a system that provides a set of applications to perform the business and technical functions of a library such as acquisition, cataloguing, circulation, serials, academic reserves, reports and Online Public Access Catalogue (OPAC). An ILMS provides access to vast amounts of information and is considered part of the knowledge or information software network that manages an institution's internal and external database resources (Dzurinko: 2000). An ILMS encourages resource sharing which has become a necessity in academic institutions due to the high cost of library material. These systems will enable academic libraries to develop and share library catalogues, and a joint bibliographic utility (Bilal, 2002:5). Myhill (2004: 10) explained that an ILMS is responsible for the most significant operations in a library. The ILM was effective for accessing books and other library materials, retrieval of materials, bibliographic search and provision of links to external databases. Findings further revealed that among the library software that was used in academic libraries in this study, only Koha ILS has the capacity to link to external databases. The use of ILS in academic libraries is critical; non-use of ILS in

most academic libraries is a setback to the delivery of quality library services to users and Matthews (2002) define an ILMS as a system that provides a set of applications to perform the business and technical functions of a library as Table 1:

Table 1: The application to perform the business and technical functions of library

Terms	Module
Acquisitions	Facilitates the purchase of books,
Cataloguing	Adopts the rules for producing catalogue records and applies them to the creation of an electronic bibliographic database
Circulation	Provides quicker access to library materials so that users can borrow, renew and discharge items.
Serials-control	Manages the receipting, distribution and processing of serials and periodicals
OPAC	Allows for uniform searching features and these are searchable by author, title, subject, and keywords

An ILMS provides access to vast amounts of information and considered to be part of the knowledge or information software network that manages an institution's internal and external database resources (Dzurinko, 2000). An ILMS encourages resource sharing which has become a necessity in academic institutions due to the high cost of library material. These systems will enable academic libraries to develop and share library catalogues and a joint bibliographic utility (Bilal, 2002). Myhill (2004) explained that an ILMS was responsible for the most significant operations in a library performing functions like cataloguing, circulation, acquisitions and serials control and OPAC. Owens (2006) stated that the librarians were becoming more dependent on electronic resources to satisfy users' needs and for seamless searching, Table 1.

Libraries in four institutions in KwaZulu-Natal (KZN) migrated from the URICA system to SirsiDynix Symphony Workflows. The University of Zululand (UniZul), Mangosuthu

University of Technology (MUT) and the Durban University of Technology (DUT), as members of Eastern Association of Libraries (esAL), went 'live' on the 15th November 2005. The University of KwaZulu-Natal was not part of the consortium initially, they decided to stand alone and they only went live on 1 August 2006. A number of problems were experienced with regard to sharing the catalogue between the three participating institutions which led to DUT withdrawing from the consortium to date, citing reasons of inconsistency and lack of uniformity by cataloguers at various institutions with regards to capturing of records. They felt this inconsistency with records was going to impact badly with their online cataloguing standards. Currently there are only two members left in the consortium MUT and UniZul.

1.2 Background and outline of the research problem

Academic libraries have been facing severe budget cuts, while hardware maintenance, software maintenance, and software licensing costs continue to rise. To reduce costs UKZN academic libraries decided to band together in consortia for co-operative resource purchasing and sharing, but also wanted to operate in one shared ILMS and use new methods to deliver improved services. As a response to this need the academic libraries in KZN wanted to reinvest their library processes by investing in an ILMS, that was going to be more cost effective, provide for co-operative collection development, and facilitate collaborative approaches to technical services and resource sharing.

South African academic libraries are currently affected by changes brought about by technology advancement, reduced funding and current global economic trends. Investing in an ILMS would help reduce the problems as well enable academic institutions to be on the cutting edge of technology and be able to improve and deliver efficient services to their stakeholders. The idea of implementation and administration of an ILMS in academic libraries in KwaZulu-Natal was a useful exercise as it enabled academic institutions to be able to share resources amongst each other. It had played an important role in libraries by managing housekeeping activities more effectively and efficiently and by providing better access to library resources through sharing of resources within academic institutions. The implementation and administration of an ILMS enabled academic institutions to customise library policies and processes to meet their needs and develop functions that are specific to their institutions. The

continuous enhancement of an ILMS, has enabled libraries to be on the cutting edge of technology. Kurshid and Kadry (2016) reveal that while most library staff have no experience with systems migration, for technical services and systems staff it is likely to be one of the largest and most complex projects of their careers. The challenge is to make a shift as seamless as possible, when migrating to the new system and to ensure the library policy is in line with the new changes and to make certain that the users are getting all possible benefits from the new ILMS.

1.2.1 Implementation Process of ILMS in academic libraries in KwaZulu-Natal

The Eastern Seaboard of Association of Libraries (esAL) consisted of three-member institutions: the Durban University of Technology, the Mangosuthu University of Technology and UniZul. esAL was a project of the former Eastern Seaboard Association of Tertiary Institutions (esATI) and esATI formed the legal entity under which esAL operated. esATI thus signed all contracts on behalf of member institutions, which in esAL's case included the library system software licensing agreement with SirsiDynix and the contract of employment (under secondments to esAL by UniZul) of the esAL Library Systems Manager. The demise of esAT and esAL had no legal basis from which to operate hence the Memorandum of Agreement (MOA) was established to serve as, a legal base to determine the terms of reference for operation between the parties involved.

The implementation and administration of ILMS had several benefits. These benefits were shared by public higher education in the region for education research other public purpose esAL System Project (E.S.P, 2004). The main purpose of the association was to:

- i. Facilitate on a nonprofit basis, the sharing of library, data and information resources
- ii. Promoting economies of scale operational
 - a. Efficiencies
 - b. Synergies,
 - c. Co-funding opportunities;
- iii. The shared use of limited resources;
- iv. The integration of compatible systems of information technology;

- v. Collaboration collection-building;
- vi. The discouragement of unnecessary duplication
- vii. The improvement of the
 - a. Speed range
 - b. Quality of service
 - c. Information literacy
 - d. Data and information resources.

According to the esAL Systems Project (ESP, 2004), a project manager was employed to oversee the total implementation of the software and hardware. This was done to ensure consistency of applications, knowledge sharing of the system as well as to build capacity within libraries. The plan for each institution was to allocate a staff member as project coordinator for their institution who will work with the project manager as part of an implementation team. This report further stated that the vendor SirsiDynix will be making an implementation team/project manager available, who was an expert with a single point of interface whenever possible, with esAL. This was going to be the project manager of the esAL systems project

A schedule detailing the focus on sharing experience and knowledge and minimizing costs by a cooperative approach was prepared was established to map the guidelines of implementing the ILMS (ESP: 2004) was. In this schedule it was stated that the esAL project manager will set up cross institutional implementation working groups, as well as establish the necessary reporting and communication mechanisms to coordinate implementation. Each institutional project coordinator (PC) will set up the necessary intra-library communications and ensure that these are maintained.

The esAL Systems Project (2004) advocated that data conversion occurred in two iterations. Cataloguing standards were established, with each module team who determined how data was going to be converted and migrated to the new system. The Project Manager in conjunction with his team identified various requirements for staff training and they were responsible for staff training delivery. Establishment of policies and parameters was the responsibility of the project manager working in collaboration with various working groups who drafted policy tables defining library users and circulation rules as well as identifying all necessary requirements for reports and

management generation. The working groups were also responsible for setting system parameters in collaboration with their libraries.

Institution Information Technology (IT) support and infrastructure preparation was responsible for establishing IT support requirements and this was undertaken by the Project Manager. Project Coordinators were responsible for the roll out of any client personal computer upgrades and for working with relevant individuals to ensure network and firewall requirements were met. Efficiency reviews were undertaken by the project manager, project coordinators and working groups, where processes for all operations for all operational areas were collated and compared. In identifying staff in each library to work as project coordinator with the Project Manager, it was hoped that capacity building in project management will be achieved (esAL Systems Project, 2004).

1.2.2 Advantages of Implementation of ILMS

During a meeting on 12/03/2004, a decision taken to implement the Unicorn Collection Management Systems (UCMS) provided by the company SIRSI was ratified by the esATI Board of Trustees. The decision was based on the strength of the companies experience with large and small consortia groupings, its impressive use of cutting edge technology and the company's considerable experience in converting from the URICA system in the United Kingdom. Furthermore, it allowed for a variety of hardware platforms. The company appeared healthy and fiscally sound and a considerable number of academic libraries are users of SirsiDynix Symphony.

The flexibility of the system in terms of degree to which client can establish their own required parameters for any activity or procedure, for their specific needs was impressive. This allows considerable flexibility in using the system, and enabling staff to create their own workflows, rather than being dictated by the system. Each staff member creates their own profile, and this profile allowed the system librarians to be able to track all activities undertaken on the system. The OPAC screen integrates with the library's web page, thus ensuring a "one stop shop" for library users and enables seamless connectivity to a range of electronic resources without having to change screens to access either the OPAC or the website.

The esAL Systems Project (2004) further stated that the company's licensing model was favourable and flexible and the company was willing to base maintenance fees on a currency basket. Another interesting feature of the system was its development structure. The system architecture allows development to be rolled out cheaply, and this was done regularly. The SIRSI approach was thus not to develop a new system, but rather to be in constant development. As stated by Johnson (2004), director of Scholarly Publishing and Academic Resource Coalition (SPARC) institutional repository, he argued that South Africa has high ambitions with regard to information technology as a tool for economic development. The national effort to close the digital divide has resulted in a number of laws specifically aimed at increasing IT capabilities within the country.

Implementing the ILS in KZN by esAL played a crucial role in familiarizing students of the province with standard internet conventions, a task which was simply not possible given the technological constraints of the previous system. In the supportive environment of the library students were able to learn browser tactics and search techniques, which prepared them for a new society currently in development in South Africa. Implementing an ILMS fulfilled academic libraries' obligations in terms of supporting South Africa across the digital divide. The process relating to the decision to purchase SirsiDynix was done in a consultative fashion, involving representatives from each library in each area of system functionality, as well as including staff from each institution's Information Technology department (esAL Systems Project, 2004).

1.2.3 Benefits of Library Management System

According to the report of esAL Systems Project dated (04/10/2004) four academic institutions in KZN agreed to a shared server and a Physical Union Catalogue. The implications of this project were to share workload by academic institutions so that they are able to improve their throughput of items in many departments of the library, resulting in books and periodicals reaching the shelves more quickly. The agreement potentially standardizes delivery of library services across all campuses by allowing for the introduction of best practice processes as well as skills transfer from the better resourced institutions to those which may lack capacity.

The scope of collections can be broadened, due to reductions in duplication of purchases, end users will have seamless access not only to library collections across the region, but also to the skills of subject librarians who can use SirsiDynix Symphony Rooms facility to construct virtual web-based resource collections for targeted audiences within the student and academic communities. Based on this esAL Systems Project (2004) it was further stated that collaboration can reduce expenditure and assist libraries in dealing with complexity such as various licensing schemas which must be implemented.

The ILMS will also improve true resource sharing through the use of OPAC facilities enabling user's access to select and peer reviewed content from traditional library collections. For end users, the shared server will provide a platform for a physical rather than a virtual union catalogue. This imposes on library staff the discipline of abiding by agreed rules and implementations of the cataloguing standards across the consortium. As result, searches are cleaner; returning fewer more targeted results which are more likely to fit the search input than in a broadcast search done across a number of systems where cataloguing standards and practices differ widely esAL Systems Project (2004).

1.3 Rationale of the study

The decision by esAL to procure an ILMS for all three academic libraries was motivated by the following issues:

- i. All three libraries wanted a system that will manage library's collection to improve access
- ii. To meet growing user expectations

The decision by esAL to bring all the library material together within this one solution has offered exciting opportunities for both staff and users. The introduction of esAL posed challenges for:

- i. Staff members
- ii. The procurement and implementation of the new system.

Implementing any new ILMS in any institution was based on improved resource discovery. The successful delivery of digital resources to anyone with access to a computer and intended to improve user experience dramatically by eliminating the need to search across numerous catalogues to find necessary information.

An ILMS provided users with a single user interface enabling users to search for books across a wide range of resources in a variety of formats thus improving user experiences of the library. Learning from librarians' experiences will help other libraries who want to engage in a similar experience not to re-invent the wheel because they will be empowered with the information they need, on how to go about implementing an ILMS.

1.4 Key questions asked

The five key questions asked in this study were the following:

- i. What difficulties and problems are experienced by users of the Universal Knowledge Software (UKS) library management system?
- ii. What are the challenges experienced by users of the Universal Knowledge Software across the academic libraries in KZN?
- iii. To what extent is the vendor of the library management system aware of the challenges?
- iv. What type of solutions can the vendor suggest to solve these problems?
- v. What strategies can be used to improve the implementation and administration of an integrated library management system in KZN academic libraries?

1.5 Delimitation of the study

All four academic libraries in KZN migrated to the new ILMS from SirsiDynix Symphony Workflows. Currently two of these institutions, DUT and UKZN, have changed to new systems, a change which was implemented after the study was conducted. This enables these institutions to access and tap talent all over the globe and to help manage and administer complex ILMS without limiting themselves to locally available talent. The researcher decided to limit the study to academic libraries on the main campuses of DUT, MUT and UKZN and UNIZUL. The major limitation with this study involves the time lapse since the ILMS was implemented. This has made it difficult to find the latest information pertaining to the implementation of the ILMS.

1.6 Definition of relevant terms

The definitions show the meanings that the terms are intended to convey when used for the purposes of this study.

- i. **Integrated Library Management System:** - “an interrelated group of computer programs that automates multiple library operations” (Saffady, 2000).
- ii. **Automation:** - “the use of computer-based systems to perform routine and repetitive tasks in libraries. Automated systems carry out the processing function necessary for acquisition, circulation, cataloging, serials, and interlibrary loans in a library” (Prytherch, 2000).
- iii. **Information Communication Technology (ICT):** - “The combination of computing hardware and software with the capabilities of communication networks that provide new opportunities for teaching, learning and training through delivery of digital content” (Prytherch, 2000).
- iv. **Online Public Access Catalogue (OPAC):** – “public view of an online library catalogue, also called PAC (Public Access Catalogue)” (Wilson, 2006).
- v. **Systems librarian:** - “can be defined as “systems experts who understand both library and information technology and can put the two fields together (Ingersoll and Culshaw, 2004).

1.7 Theoretical Framework

The focus of this study is based on the effectiveness of an ILMS in supporting how library staff performs their functions. It is looking at the implementation of appropriate systems to carry out functions such as circulation, cataloguing, acquisition, circulation, serial control, and generating reports. It also looks at necessary administrative policies and record keeping activities. Therefore the theory must be able to provide a framework to address the important factors of integration, of sharing resources and of managing various components. The researcher decided to select these theories for this study because they were relevant and able to address the issues pertaining to ILMS as each theory explained various components of the ILMS which were relevant to the study with the purpose of proving efficient and effective information to help improve library services. Three theoretical models provide sufficient explanation to discuss these factors and these are: (i) Sani’s model which is the integration of the ILMS which shows the integrated nature of various components of the systems (ii)

Systems Theory which is the foundation for understanding systems theories, and lastly (iii) Information Systems theory which is an information system that performs a variety of functions such as cataloguing, acquisition, circulation and serials control within the framework on the information system with the purpose of providing information services with easy access and quick access to information.

The theoretical framework for the study is based on the Systems theory and the Information Systems Model which explains that an ILMS must be able to handle many formats and provide a variety of functions including manipulating electronic data, searching the Internet and facilitating resource sharing. These theories further illustrate that an ILMS must include a web based OPAC, with basic patron features, such as reviewing checkouts and allowing online item renewal (Breeding, 2003). According to these theories, ILMS software provides an opportunity to integrate all library modules, such as acquisition, cataloguing, circulation, serials control and reports module, into one package for effective management of library processes. According to Eke (2009) an ILMS would be successful when one is able to understand various library software, run a pilot test before making selection of the software adequate for library operations.

1. 8 Research Methodology

Henning (2007) defines research methodology as a coherent group of methods that complement one another and are able to deliver data and findings that will reflect the research question and suit the research. Research methodology comprises two approaches, according to Newman (2003), which are qualitative and quantitative. Quantitative methods are generally geared towards documenting subject attributes expressed in quantity, extent, or strength as well as guaranteeing among other things, objectivity, accuracy, validity and reliability. The study fell into the qualitative research paradigm where interviews were conducted with participants at their place of work. Biographical sketches were used to describe participants in the study. Data was analyzed based on the responses from the interviews questions asked. This study will use a qualitative approach to investigate ILMSs in KZN academic libraries taking into

account that a researcher is aiming at having a general assessment of opinions, attitudes, or feelings of people (Dawson, 2007).

Qualitative researchers rarely try to simplify what they observe, instead they recognize that the issue they are studying has many dimensions and layers and try to portray the issue in a multifaceted form (Leedy and Ormrod, 2005). Qualitative research can reveal the nature of certain situations, settings, processes, relationships or people (Leedy and Ormrod, 2005). The population of the study was to be drawn from the staff of academic libraries on the main campuses of UKZN (University of KwaZulu Natal), MUT (Mangosuthu University of Technology), and DUT (Durban University of Technology). The population consisted of the Professional Librarians who were each working with different Modules: - Circulation, Acquisitions, Cataloguing and Periodicals as well as the Systems Librarians, who were responsible for managing and troubleshooting the system, Library Management, and lastly two representatives from Universal Knowledge Software (UKS).

An interview schedule was pretested tested on seven Librarians from Mangosuthu University of Technology before being administered but these librarians were not part of the participants interviewed. Face to face interviews were conducted. The transcribed information was analyzed by coding units of analysis for broader categories and themes. The research methodology followed in the study is discussed in detail in Chapter 3.

1. 9 Structure of the Remainder of the Study

Chapter One: Introduction and background to the study

This chapter explains the background to the study, the research problem, the research questions and objectives, the scope and limitations and definitions of key terms.

Chapter Two: Literature Review and Theoretical framework

This chapter gives a summary of the literature reviewed by the researcher which give various explanations of what authors are saying about ILMS in various academic institutions as well other similar studies conducted by researchers on the subject.

Chapter Three: Research Methodology

This chapter presents a discussion of the research methodology used in this study to gather information about ILMSs in academic institutions in KZN. The methodology is the process by which data is collected and analysed. The instruments used in this study will be presented, the population of the study, the discussion of interview schedules as well as the data collection and analysis used were highlighted.

Chapter Four: Data Analysis/ Results

This chapter provides the conclusions reached and the resulting recommendations made by the researcher. It gives an understanding of whether the research questions have been answered by the study.

1.10 Chapter Summary

In this introductory chapter, various components of study were introduced, namely:

- 1) The background and outline of the research problem
- 2) Rationale for the study
- 3) Key research questions
- 4) Theoretical framework in brief
- 5) The definitions of important terms used in the study and the delimitation of the study.
- 6) The research methodology adopted.

Chapter Two

LITERATURE REVIEW

2.1 Introduction

The purpose of a literature review is to contextualize the student's understanding of research (Paltridge and Starfield, 2007). A literature review shares with the reader the results of other studies that are closely related to the one being undertaken, filling the gaps and extending poor studies (Creswell, 2014). It provides insight into ways in which the researcher can limit the scope to a needed area of enquiry. A number of articles have addressed the implementation of an Integrated Library Management System (ILMS). The discussion below will focus on the literature related to an ILMS in academic libraries and library automation generally. The literature review will also be looking at various studies undertaken both locally and internationally.

An ILMS as defined by Saffady (2000) is an interrelated group of computer programs that automate multiple library functions. Cibarelli (1999) refers to the provision of integrated online access to the library catalogue and to cataloguing, circulations, acquisitions, and serial management functions. As an overall framework it is useful to have in mind Borgman's (1997) identification of three stages of library automation which involve:

- i. Improving the efficiency of internal operations, through improving internal workflow and sharing catalogue data.
- ii. Providing access to local library resources, through the provision of OPAC's.
- iii. Providing access to resources outside the library.

Borgman (1997) also went further to look at the next stage of an ILMS which involves enhanced facilities for identifying, locating and obtaining information, bibliographic data exchange, integrating local collections with other types of information resources. She suggested that library systems development has now reached this stage, where the dominant theme is that of ensuring the interoperability of systems, with a related tendency towards modularization and fragmentation. Healy (1998) and Evans (2000) question the need for libraries to continue investing in an ILMS suggesting that more

genetic Web-based information retrieval system may provide a better means of integrating library content. It is suggested by Rhyno (2000) that the advent of Web services may spell the end of the ILMS as we have known it, leaving instead library applications framework. This is more a matter of system architecture however than that of functionality. It is difficult to see how functionality of today's ILMS in respect of the automation of library processes and resource sharing could readily be superseded. In this study the researcher decided to consult literature both internationally, nationally as well as locally, so as to get the insight of different authors on how they assessed unpacked the ILMS at various institutions.

2.2 International Arena

The researcher decided to investigate other international scholars who have conducted research on ILMS. This was done to have a broader understanding on the use and benefits of the ILMS internationally.

2.2.1 United Kingdom

In a study done by Foster (2007) in the United Kingdom (UK) on the implementation of an Integrated Information System (IIS) at the National Library of Wales, the decision to procure an ILMS was driven by the desire to improve access and to meet growing users' expectations. Based on this study, it was found that implementing an ILMS has offered exciting opportunities for both staff and users but has also posed many challenges for those involved in the procurement and implementation of the new system. The main challenge faced was integrating the management of a wide variety of materials while providing access to the entire collection.

Libraries that invest in implementing ILMS will be an excellent mission to achieve the expected goals of enabling its users to search easily and efficiently across all its resources. Another challenge identified was that of a project management team who wanted to prioritize various elements within the implementation. Also change the project plan to allow work to move forward while delaying some other elements, such as staff training. In some cases it was discovered that considerable time had elapsed between the initial training session and being in a position to practice their new skills on the system. In other cases it was discovered that the period between training and

working on the live system was shorter than planned which resulted in some staff not being 100 per cent confident of using the new system before the go live date. Most problems identified were due to the complexity of varying sets of data involved, the resulting impact on the timetable for migration and for the project.

2.3 Technological Educational Institution of Athens, Greece

In a study done by Skretas (2005) in Athens in Greece on the issues concerning the utilization of library and information management systems, it was found that the use, offered by the ILMS as well as the degree of its usage, might be linked to the following:

- i. Training of staff
- ii. Staff readiness to embrace the project
- iii. Vendors support of the system.
- iv. Association of the system to library requirements
- v. Enough period for execution
- vi. Current skills and training
- vii. Collaboration with other users of the ILMS.

A standardized list may be used to explore the use of the ILMS. When such simple approach is used , library professionals, as well as library management, will achieve valuable decisions. This will result in the attainment of better results that will benefit everyone (Skretas, 2005).

2.4 Central Washington University

In a study done by Fu and Fitzgerald (2013) conducted at the Central Washington University investigating the comparative analysis of the effect of the integrated library system on staffing models in academic libraries. This analysis compared the traditional integrated library system and next-generation systems that may have an impact systems and technical services staffing models at academic libraries. The results of the analysis suggest that the next generations of ILMS could have substantial implications for library systems and technical staffing models. This suggest that library staffing models could be redesigned key librarian and staff positions redefined to meet the opportunities and challenges brought on by the next-generation ILMS.

In order to reduce costs, today's libraries not only band together in consortia for co-operative resource purchasing and sharing. The formation of consortia often want to operate one shared ILMS for managing, building and sharing combined collections of members. The constructions of consortia are seeking a new ILMS that exceeds traditional ILMS capabilities and uses new methods to deliver improved services. The new ILMS should be cost-effective, should provide prospects for co-operative collection development and should facilitate collaborative approaches to technical services and resource sharing (Fu and Fitzgerald, 2013).

The next generation ILMS enhances and reintegrates the workflow of traditional ILMS functions. It brings together the selection, acquisition, management, and distribution of the entire library collection. It provides a centralized data-services environment to its unified workflows for all library assets. Fu and Fitzgerald (2013) advocated that the next generation ILMS provides the authoritative ability for consortia users to manage local holdings and collections as well as shared resources. The cataloguing records were shared at the consortium and global levels in real time. Each institution benefits from original cataloguing records added to the system and from enhancements to existing records with real-time circulation between library's collections and item data in a separate local system. Traditional technical services workflows provide a shared bibliographic database. Whenever a member library performs selection or ordering, the library is able to determine if other consortia members have already selected, ordered, and catalogued the title. This may impact on local selection, allowing consortia members to more collectively develop their individual collections and avoid duplication. All these approaches require more collaboration and co-operation between consortium members.

2.5 The future of the ILMS

In a study done by Xiaohua (2014) at the Sacred Heart University in the U.S.A was found that the rapid progression of web technologies and the exponential growth of electronic resources and digital contents have increased the ILMS growth. Xiaohua (2014) emphasized that this is due to the lack of flexibility, interoperability, and efficiency which makes the ILMS hardly able to meet the needs of both internal and external library users. Meanwhile Content Management Systems (CMS) such as

Drupal and open source ILMS have gotten much attention due to their technological and economic advantages. Also cloud computing has allowed libraries to focus on bigger picture. This technological growth has forced major ILMS vendors to turn the wheel and develop the next generation ILMS.

The above study further looked at the current status quo and the impacts of ILS. Xiaohua (2014) revealed that the increasing growth of web technology, and the surfacing of Web 2.0, digital contents have taken the spotlight of the information globe. Plenty of resources have been digitized and available online. Libraries have experienced 60% growth in e- books collections between 2005 and 2008 (Wikipedia, 2014), meaning that library collections, are no longer print – dominated. As the digital content incline the weakness of ILSs becomes more evident.

Xiaohua (2014) discussed the financial disadvantages that the ILS were facing as results of institutions shrinking budgets as well as the decrease in the economy has impacted on the libraries. Many libraries have also been affected by the declining budgets and spending cuts. In the face of these adversities libraries more than ever but they need the assistance in technology to effectively manage their workflow. The findings of this study by (Berry, 2011) at the round the table panel discussion which was held in the American Library Association(ALA) Midwinter conference stated that the ILMSs face the following challenges:

- i. increasing amount of digital contents
- ii. reorganization of workflows
- iii. open source competition
- iv. public interest in libraries
- v. incorporation of all services
- vi. software as service- cloud computing

The panel discussion agreed that open dissatisfaction with latest ILS pushed the team to move their role and the available applications placed on the market. They further said that with the available technology they were positive that they would be able to develop cost-effective new systems. They also admitted that in order for them to continue doing business , it is essential not to ignore but deal with the concerns of users.

2.6 Integrated systems applications in Kuwait academic libraries

The following study by Sajjad and Reham (2010) in Kuwait academic libraries was considered important by the researcher because these libraries were also using an ILMS and this study further revealed how the procurement of an ILMS unfolded. The study aimed to discover the management and use of automated systems in Kuwait academic libraries, emphasizing mainly procurement, management and service aspects. Currently Kuwait has 14 colleges with academic programs related to arts, and sciences, social sciences, science, engineering, business and management, health sciences, and other disciplines both at the undergraduate and graduate levels (Sajjad and Reham, 2010).

The authors further stated that only six of Kuwait's higher education institutions are using an ILMS. A request for proposal (RFP) was developed by four institutions before buying a system. Library managers, systems analysts, the computer department, and the university management were all involved. They came up with the following factors that will contribute to their choice of a system:

- i. Application of coverage
- ii. Support from the vendor
- iii. Facilities for training.
- iv. User group
- v. Response time and documentation.

There were also factors that were received lower frequency such as:

- i. System demonstration such as how well is the system performing.
- ii. Reputation of the system
- iii. Cost of the system

It was discovered that six institutions customized their systems to meet their needs. Training for all staff was organized by the vendor. The survey conducted for this found that Kuwait academic libraries, the Horizon Integrated system (HIM) were used by five of the six libraries. Cataloguing applications were completed in all surveyed libraries. The circulation module was not used in the largest university library. Serials management was not optimally utilized in the survey libraries.

2.6.1 Configuration of automated systems and networking

Based on the findings of the study conducted Sajjad and Reham (2010) it was revealed that the Horizon Integrated Library System 73.3 developed by SirsiDynix Corporation was the ILMS being used. The vendor provided support, updates, training, and troubleshooting. The institution relied on systems analysts for day – to - day management and the library staff was responsible for general trouble shooting. Systems management was responsible for systems department and a special committee. Kuwait Local Area Networks and intranets connected to the university central computing system. All libraries using the ILMS made five backups weekly (Sajjad and Reham, 2010).

2.6.2 Cataloguing applications

On the cataloguing applications the findings of the above study revealed that cataloguing was the bedrock for developing additional applications. It was further also found that six institutions from Kuwait had automated about 90% of their collection and all of them had machine readable cataloguing (MARC) compatible records. The number of records in cataloguing databases was well-matched with the size of library systems. All libraries had included capacity for ensuring the development and maintenance of the authority files and they share their library catalogue through broadcast searching (Sajjad and Reham, 2010).

2.6.3 Library OPACS

Sajjad and Reham (2010) discovered that OPACS had the facility to search through electronic resources and databases. OPACs have similar searching features and these enable users to search using the author, title, subject heading, keyword, series, call number and ISBN/ISSN, and the barcode number. A search can also be limited by arrangement in all these institutions.

2.6 4 Additional applications

The findings of the study conducted by (Sajjad and Reham, 2010) revealed that 90 per cent of library resources had been prepared for lending service in four of the six libraries, implying that these had barcode labels on books, security chips, etc.

However, Kuwaiti academic libraries were the largest institutions and had 60 -89 per cent of their collections ready for loan service.

2.6.5 Report generation

In the study conducted by Sajjad and Reham (2010), the findings concluded that five of the six academic libraries in Kuwait generated different types of reports from their system. The circulation report included books that were borrowed by users, types of users vs. item type, fines, overdue, and statistics information. The system was also generating acquisition, cataloguing and authority statistics from the cataloguing applications. In acquisition, reports generated were for item status, budget head, and purchase order and statement request. In serials control, reports generated were for missing issues and status reports. Five libraries generated the same types of reports because they were using Horizon system that had one vendor. Intelligent uses of these reports were applied for decision making collections management as well in these libraries. If these libraries use the Management Information System component of their automated system, their management and decision quality will have a considerable improvement.

Based on the findings of the study Sajjad and Reham (2010) concluded that Kuwait academic libraries have crossed the entrance for library automation. However full use of the ILMS can be achieved if they move in certain directions like searching of electronic resources, web, OPACS, databases, and digital libraries need to be integrated. They also need to improve their access capabilities by contributing to national and regional consortia. Kuwait academic libraries were privileged in that they secured the funding and resources they needed for fresh initiatives and for using new applications of their ILMS. It required strong leadership with wisdom, vision, courage and a sense of entrepreneurship so that they were able to exploit the benefits of the development in information technology.

2.7 Assessing the adoption and use of integrated library systems (ILS) for library service provision in academic libraries in Edo and Delta states, Nigeria

In a study done by Omeluzor and Oyovwe-Tinuoye (2016) on assessing the adoption and use of ILSs in academic library operations in Edo and Delta states in Nigeria it

was discovered that there is a general non-use of ILS in academic libraries in Delta state. The findings revealed that three of the four academic libraries in Edo State adopted an ILS. These findings showed that the ILS that was used in academic libraries in Edo State is effective. The ILS was effective for accessing books and other library materials, retrieval of materials, bibliographic search and provision of links to external databases. Findings further revealed that among the library software that was used in academic libraries in this study, only Koha ILS has the capacity to link to external databases. The use of ILS in academic libraries is critical; non-use of ILS in most academic libraries is a setback to the delivery of quality library services to users.

According to Ayia and Kumar (2011), in a study done Omeluzor and Oyovwe-Tinuoye (2016) in Nigeria, they advocated that traditional library processes and structures are proving unsatisfactory to respond quickly enough in a technology-driven environment. They further stated that change is not only desirable but mandatory because technology has much potential that cannot be ignored. Parves (2011), based on the findings of this study in Nigeria, stated that to deal with new challenges due to the increasing demands of library uses, libraries must consider consolidating, reshaping, redesigning and repackaging their services and information products by incorporating ICT-based products and services. The integration of suitable library operations enables users of academic libraries to have access to information materials at any time, irrespective of their geographical locations.

ILS software provides an opportunity to integrate all modules such as acquisition, cataloguing, circulation, serials control, selective dissemination services and reference services into one package for effective management of library processes (Eke, 2009). The author further revealed automation of academic library operations using an ILS would be successful when one is able to under-study various library software packages, run a pilot test before making a selection of the software that is adequate for library operations.

In the same study on Nigeria Omeluzor and Oyovwe-Tinuoye (2016) other authors such as Osaniyi (2010) argued that vendors attitude towards supporting their clients were unacceptable. Furthermore noted that commercial vendors do not have any incentive to offer their software at nominal cost while some software have failed due

to inherent problems and virus attack. Omeluzor and Oyovwe-Tinuoye (2016) were of the view that these hindrances have made Nigerian libraries abandon their software and begin to search for other software options. Supporting these assertions, Osaniyi (2010) claimed that a major problem that Nigerian libraries have with international vendors is largely due to factors related to cost and support. He further noted that technical support of this software was either not available or unreliable.

Afolabi and Abidoye (2011) said ILMS provides access to information materials at any geographical location via the Internet, provided they have the appropriate user passwords. Among the many and varied opportunities that ILS offers to libraries is to support and improve existing traditional services. Lastly, an ILMS allows libraries to provide multimedia based information in ways that libraries have not been able to do before (Mallapur and Naik, 2009). Parves (2011) noted that ILS are useful to libraries in several ways:

- i. Accurate and efficient in services
- ii. Helps to control delivery of information
- iii. Assist to provide high quality of services and increase range of service
- iv. Saves time, space, energy and resources
- v. Facilitate resource sharing by co-operation and coordination and
- vi. Help to promote library's image by providing better services in modern time.

Furthermore, Parves (2011) stated that some ILS provides multimedia facilities and images of resources in the OPAC. He further noted that with the help of a web OPAC, users can search for information from anywhere at any time. In essence, librarians do not necessarily move physically to the book shelves to surf for information materials for users.

A study that was conducted in highlighted the challenges facing the use of ILS in Nigeria by looking at various studies done by other researchers (Omeluzo and Oyovwe-Tinuoye, 2016). Osaniyin (2010), Omeluzor et.al. (2016) revealed that Nigerian academic libraries are faced with several challenges in the application and use of an ILS, including virus attack, poor state of power supply, maintenance culture, vendors' lack of support and lack of training. Other factors that hinder the application and use of an ILMS include insufficient funding of library software, poor infrastructure,

retrospective conversion of information materials into digital form, unavailability of library software experts and insufficient training programs for staff on the use of library software.

In another study conducted by Unegbu (2013) on integrated library management software in selected Nigerian universities, it was established that there was poor communication between the library management and software programmers. Most of the library management software used by Nigerian university libraries was acquired through vendors. The results also indicated that those university libraries which acquired software from vendors maintained the software through maintenance agreements. A high percentage of computer illiteracy among librarians existed, as well as lack of commitment by the parent institution was also noted. The issue of lack of planning, retraining of manpower, inadequate feasibility studies by individual university libraries on cost implications and maintenance before embarking on automation projects were identified. Mutula (2004) advocates that library automation in the African environment was improving but there were still several challenges that need to be addressed like the issues of the digital divide and the maintenance of existing library software which needed to be addressed. Other challenges are discussed below:

2.7.1 Training of library staff in Nigerian university libraries

Manda (2005) is of the view that the training of library staff was not an end in itself. The expectations were that the staff will impact the skills and knowledge gained from training to train their end users. The training of end-users in the use of electronic resources should become the central activities in any library. The staff and students can effectively search and utilize these resources, in which institutions and donors have made substantial investment.

Daniel (1999) further stated that the training of staff on the management of automation was a necessary investment if an organization was to be productive. The success or failure of ICT in university libraries depends mostly on staff. Training and retraining of staff is important to sustain the ICT effort. Trainings or workshops, seminars or in –

house training is geared towards making staff more effective. Training acquaints staff with the necessary skills that will enable them to be more useful in their places of work.

2.7. 2 Management Issues

The management of academic institutions is not fully interested in library software installation. The lack of interest by academic institutions management towards automation has resulted in few academic libraries sustaining automation after installation of the library software. This is evident from a study by Atikunde (2000) who argued that lack of appreciation of automation by institutions librarians, the as well as the negative attitude of library management towards supporting the libraries automation projects grossly affect the success of library software application to routine services and operations of academic libraries. Another factor supporting the above statement is poor feasibility studies conducted regarding library automation which has affected the failure of library automation in sub-Saharan Africa (Atikunde, 2000).

2.7. 3 Technology Issues

Igun (2006) was of the view that there was a high level of illiteracy in Nigeria and that information and communication technology literacy was very low. She further observed that computer illiteracy was one of the problems facing Nigerian libraries in the twenty-first century. Chisenga (2000) also addressed the same issue and stated that information technology and electronic networking required skilled manpower to install and manage the technology in libraries in sub-Saharan Africa. Due to poor funding, libraries cannot attract computer programmers, or network administrators. Funds to retain the existing staff and equip them with appropriate information skills were not made available. This resulted in the under-utilization of the installed systems and lack of innovation in the use of information technology.

Automation and library software management is expensive as it requires proper planning and organization and it must be fully utilized to pursue excellence. Amakuedee (2005) investigated the library processes in Ghana and discovered that these libraries are hindered by lack of funds, support from university administration, and skillful staff resulting in none of these libraries developing.

2.8 University of Malawi Library automation project

In a study done by Wella (2011) at the University of Malawi on library automation he focused on the issues of project management, time and risk planning, management of resources, feasibility studies and piloting of the project and precise costing of the project. The above author established that affected library automation in many parts of Africa, was exacerbated by the ad hoc manner in which some projects were handled. Wella (2011) recommended that libraries should use project management principles when planning and implementing library automation projects and librarians should improve their skills to include project management.

2.8.1 Project Planning

In the same study done at the University of Malawi it was found that the project implementation is about identifying problems and developing strategies to correct them. The study established that there was awareness of the importance of project planning. Further, project documents analyzed were found to have detailed guidelines for planning the project. For instance, draft policy proposal detailing guidelines for setting up the Automation Planning Committee for the University of Malawi Libraries, and the structure and contents of the Systems Plan. However, it was discovered during library staff interviews that the plan was not followed. This is according to a project report done by Allan (2004) in the University of Malawi Libraries it was further discovered that the planning done had some shortfalls

2.8.2 Time Planning

In the analysis of project documents, nine funding proposals for library automations were analyzed. The proposals did not mention the time within which the project would be implemented. None of the project proposals included the estimated start and end date for the implementation of Library Solution Software. Also based on this study done by Wella (2011) it was pointed out by Webb (2001) that many projects fail to complete on time because of lack of precision in the early planning stages. The inconsistencies in the estimation of the time period of the project are evidence that there was no precision in the planning process.

2. 8.3 Risk Planning and Management

In the study done by Wella (2011) on library automation it was further discovered by Cervone (2007) that the University of Malawi risk planning and management provides systematic ways of planning for, identifying, analyzing, monitoring, responding to and controlling risks. This report it was found no striking absence of plans on the risks identified at that the management stage of the last part of the project. Another problem identified was that exhausted donor funds before the conclusion of the project. There were no plans in place to ensure that the project was concluded. Further analysis of project documents showed evidence of lack of team work as no project team was present. Both interviews and content analysis established that the implementation of library automation in Malawi was not done as a project but it was done as part of day to day work in the library therefore project and risk planning were not done.

2.9 South African Arena

South African ILMS environment, developed systems like URICA have not responded to the growth, and complexity which has led to an increasing reliance on overseas vendors and systems such as SirsiDynix. Hoskins and Stillwell (2012) in their article entitled: Integrated Library Management Systems: a review of choices made and their sustainability in South Africa, they discovered that libraries have changed to ILMS to enhance their collections. Their article looks at various systems used, as well as the criteria used to influence the choice of the systems. The literature review of this study identified the use of ILMS in various sectors and provided information about the vendors representing them. It further discovered views about the success of an ILMS. The literature consulted identified problems of inadequate bandwidth, ICT infrastructure and support were experienced.

2.9.1 Systems Choice

In South Africa, Brammage (2002) stated that three vendors had been highly rated by the Eastern Association of Libraries (esAL): SirsiDynix (Horizon), Innovative (Millennium) and SirsiDynix (Unicorn). esAL selected the Unicorn system. The withdrawal of the University of Natal from the project, resulted in the Durban Institute

of Technology (DIT) library databases becoming the primary database for the installation of the Unicorn System in the esAL consortium (Raju, 2005).

In Gauteng, Taole (2008) evaluated the INNOPAC ILMS which was a library system used by libraries in developing countries like Lesotho, Botswana, Mozambique, Namibia, South Africa, and Zimbabwe. Taole (2008) observed Gauteng and Environs Consortium (GAELIC), the Free State Library and Information Consortium (FRELICO), two university libraries (Namibia and Zimbabwe) and an agricultural college (Botswana) that used the system. The criteria she used applied to small, multiple consortiums in a developing country. Taole (2008) discovered that the INNOPAC system performed pleasingly in these consortia and libraries especially in the key areas of functionality, usability, support and training, system management and vendor competence.

The ILMS has increased productivity, improved customer relations and resulted in better decision making within the two consortia. Taole (2008) recommended that further research to be conducted on the advantages and challenges of INNOPAC system. The choice of system for universities has a strong regional and consortium base.

2.9.2 Special Libraries

Sani (2006) evaluated three systems for the Human Sciences Research Council (HSRC) Information Services. These were Innovative Interfaces' Millennium, SirsiDynix Unicorn and Ex Libris's ALEPH. She eventually recommended Millennium for the HSRC service (2006). The Constitutional Court uses SirsiDynix, Special libraries and the Education Department use the open source software Papyrus.

2.9.3 Migration of Integrated library system in KZN

Raju et al (2007) identified the factors that influenced the selection of an ILMS and the implementation of the migration process. This paper discusses the migration of an integrated library system in three institutions in the province of KwaZulu-Natal (KZN), namely esAL, the University of KwaZulu-Natal and the eThekweni Municipal Library, to such systems. All three institutions migrated from a common product in URICA to a

common vendor and product in SirsiDynix. Each followed its own strategy of selection and implementation. The growing trend was to move away from purchasing a system off the shelf to building a system using open access software that meets the needs of a particular LIS environment.

2.9.4 Implementation of the Migration process

In the study by Raju et al. (2007) it was discovered that If the choice of a system was a commercialized product, formal agreements between the vendor and the library regarding timeframes must be agreed upon. Furthermore seeing that a huge financial and human resource implication, were employed there was a need for individuals to take charge and steer the ship. Under the leadership of such individual, the library can make decisions about the approach to be adopted for implementation of the ILMS system.

The literature by Seeman (2003) and Khurshid and Kadry (2006) suggests that the implementation of a new ILMS needs the direction of one person to keep the project on track. The person directing the ILMS implementation must be in charge of technical services or the systems department. Ultimately a well implemented migration will benefit the organization as it will decrease the add-on costs and the system can be utilized to its limit without unnecessary delay.

2.9.5 Configuration

A system that is well configured will add value to the use of the system by users. Therefore, every attempt must be made to create an environment that is favorable to efficient configuration. Salisbury (1999) and Myhill (2000) indicated that a common environment is a major provider to excellence in configuration. To include to the woes of those configuring the system is the control rendered by the North American vendors as well as the usage of language that is peculiar to them. The expressions such as patrons to users, checkout as opposed to issues, check-ins as opposed to returns and such add to the uncertainty that makes the system even more distant from the replacement product.

2.9.6 Training

The backbone implementation of the ILMS and future operation requires the work of a skillful staff. It was critical to have structured training sessions for everyone in the library supported by training documentation for on-going support (Salisbury, 1999). It was also common practice to identify a group of staff to be trained by the vendor. Thereafter, cascade training can be embarked upon. Seeman (2003) proposed that training should be done by the vendor, as vendors were experts and had experience. An added benefit was that staff resources that would otherwise be spent on internal training could be freed.

2.9.7 Communication

The study further stated that staff needed to know current and latest developments from sources that have control to reveal such. The information that staff receive must be valid and they must be given a platform to express their concerns and have those concerns addressed. Bowden (1985) recommended that libraries migrating to a new system should develop campaigns to build awareness of the fact that there is an improved system on its way.

2.9.8 Factors affecting the implementation of the ILMS in the library

Skreta (2000) considers the following factors as essential for the implementation of an ILMS and these are discussed below:

2.9.8.1 Correspondence about the ILMS to the library and the potential for using it.

A feasibility study should be conducted to guide the library on the selection of ILMS. and this must be applied in the beginning of an automation process. The best system for the library is not necessarily that one that is the most complex on the market, but the one that the library personnel will use to its full potential. A reasonable time should not exceed five years, as marketplace forces the need for major change after such time. The director of the library should be in charge and in a position to judge the study.

2.9.8.2 Administration

The library administration should have the best possible control of the situation. There should be a plan of implementation that covers aspects like specific goals, and an implementation schedule. Expectations and requirements should be limited to the real capabilities of the system. Additional resources might be needed if retrospective work is necessary. Sometimes completely new staff specialty might also be necessary. An upgrade to a new system should not underestimate the effect the functioning of the library and the requirements it will pose (Skreta, 2000).

2.9.8.3 Contract

The contract between the library and the vendor should be detailed, and fully understandable by all involved. It should take into consideration the dates required by the implementation plan, and eventually, the contract should be respected by both sides (Skreta, 2000).

2.9.8.4 Co-operation between the vendor and the library

The staff should be appointed to have direct contact and co-operation with the vendor and the co-operation to be extended in other areas such as training, and technical support.

2.9.8.5 Existence of necessary technical infrastructure

The chosen ILMS should guide the library to prepare the necessary infrastructure. The ergonomic factors should also be taken into account. Where possible each workstation must be adjusted for use by staff who works at it. Staff who spends great deal of time in front of their personal computer will find any system difficult to use if the workstation is unsuitable.

2.9.8.6 Adequate standard of library personnel

Human resources are key for the successful implementation of the ILMS. The staff should have the necessary professional knowledge required by the system. The staff should be trained, usually by the vendor, on the use of the specific ILMS. Attention

should be paid towards a better understanding of the system, especially if new policies or methodologies are introduced. In most cases where the staff had proper training and adequate time for practice, the results were of a higher standard compared with cases where staff had no training. Moreover, in cases where inadequate training took place, mistakes were made because bad use of the system was often blamed on the system. In some cases this situation led to the rejection of the ILMS and the acquisition of a new one.

2.9.8.7 Policy on the use of the system

The library should be able to implement its policies and regulations using the ILMS. However it must be stressed that the library should be prepared to alter its methodologies, using options the system offers to allow for the improvement of its functions and its services. If the library does not do this without a reason, it means that it does not understand why it acquired the ILMS.

2.9.8.8 Possessions and usage of all necessary library tools.

The library must have access to additional tools for appropriate use of an ILMS and be used accordingly. The International Standard Bibliographic Description (ISBD) is not adequate for entering the bibliographic format that is usually used by the systems but the usage of appropriate MARC manuals is required.

2.10 Theoretical Framework

This study looked at the implementation of appropriate systems to carry out functions such as circulation, cataloguing, acquisition, circulation, serial control, and generating reports. It also looked at necessary administrative policies and record keeping activities. Therefore the theory was able to provide a framework to address the important factors of integration, of sharing resources and of managing various components. The researcher decided to select these theories for this study because they were relevant and able to address the issues pertaining to ILMS as each theory explained various components of the ILMS which were relevant to the study with the purpose of proving efficient and effective information to help improve library services. Three theoretical models provided sufficient explanation to discuss these factors and

these are: (i) Sani's model which is the integration of the ILMS which shows the integrated nature of various components of the systems (ii) Systems Theory which is the foundation for understanding systems theories, and lastly (iii) Information Systems theory which is an information system that performs a variety of functions such as cataloguing, acquisition, circulation and serials control within the framework on the information system with the purpose of providing information services with easy access and quick access to information.

The theoretical framework for the study was based on the Systems theory and Information Systems Model which explained that an ILMS must be able to handle many formats and provide a variety of functions including manipulating electronic data, searching the Internet and facilitating resource sharing. These theories further illustrate that an ILMS must include a web based OPAC, with basic patron features, such as reviewing checkouts and allowing online item renewal (Breeding, 2003). According to these theories, ILMS software provides an opportunity to integrate all library modules, such as acquisition, cataloguing, circulation, serials control and reports module, into one package for effective management of library processes. According to Eke (2009) an ILMS would be successful when one is able to under-study various library software, run a pilot test before making selection of the software adequate for library operations. These theories will be discussed in the following table.

Table 2: The presentation of theories and explanation

Theory	Explanation
Sani model (2006)	The integration of the ILMS which shows the integrated nature of various components of the systems.
Systems Theory (Klir,1972)	The foundation for understanding systems theories,
The Information Systems Model by Fattahi and Afshar (2002)	Is the system that performs a variety of functions such as cataloguing, acquisition, circulation and serials control within the framework of information systems.

2.10.1 Sani's Model

Sani's (2006) model is of the view that ILMS must be able to offer: -

- i. Full support for traditional library functions.
- ii. Seamless movement between functional modules.
- iii. Graphical user interface (GUI).
- iv. Ability to acquire provides access to, manage, and control local, national and global resources in many formats.
- v. Full support for national standards and industry-standard system components
- vi. Powerful and flexible search engine
- vii. Technology that is adaptable to future technological innovation
- viii. Web servers with seamless connectivity.

Sani (2006) in his framework also identified that a system should be built around a single workstation, where all staff can use all appropriate systems and services, both local and external, from a single intelligent workstation. Sani (2006) also identified other technical concerns such as:

- i. Vendor experience in migrating data from the previously used ILMS to new ILMS
- ii. Specific system architecture of the ILMS
- iii. Integration with other database
- iv. Hardware and software
- v. Server requirements
- vi. Maintenance and support issues
- vii. Reporting and statistics
- viii. Security concerns.

2.10.2 Systems Theory

Systems theory is defined as a new way of looking at the world in which individual phenomena are viewed as interrelated rather than isolated, and complexity has become a subject of interest (Klir, 1972). Systems theory also consists of unified

systems of propositions made with the aim of achieving some form of understanding that provides an explanatory power and predictive ability. This is evident in an ILMS as it unifies systems used to manage all library operations, which will enable information services to adjust workflow and practices so that they are able to share and utilise resources efficiently while saving costs and time.

Systems theory consists of a set of interrelated components working together toward some common objective or purpose (Blanchard and Fabrycocky, 2006). The authors further looked at Systems Theory and advocated that it enables thinking, decision making, action, and interpretation with respect to other systems. This implies that an ILMS enables various academic libraries to share their library catalogues with each other, to avoid duplication of tasks by ensuring that resources are evenly distributed. It is also believed that Systems Theory is the foundation for understanding multidisciplinary systems. An ILMS can benefit from the application of Systems Theory when viewing multidisciplinary systems and their related problems. Understanding of the proposed construct of Systems Theory affords systems practitioners greater overall systems understanding. The Systems Theory is of the view that implies that systems librarians must be able to understand all the technical usage of the systems and be able to utilize it to its maximum so that goals of the academic institutions are achieved.

2.10.3 Information Systems Model

The above model is discussed with the ideas of Fattahi and Afshar (2002). Based on the above the library is an information system that performs a variety of functions such as cataloguing, acquisition, circulation and serials control within the framework of information systems with the purpose of providing information services with easy and quick access to information. In such a situation the librarian can use the same terminal to access information stored in other sections, to search in them, and transfer data, as well as carrying out quality control (i.e. editing records).

The Internet is an information system, as well as OPAC, database of journal articles, dissertations abstract and library websites are major parts of the information systems. Over the last decade librarians have gradually succeeded in increasing the capabilities

of information systems to change their capacity, speed, and accuracy of information storage and retrieval. They have attempted to maximise the benefits taken out of every piece of information. A number of capabilities that add to the value of information could only be achieved through using information systems, in particular computerized and electronic ones. Examples include simultaneous use of information, electronic exchange of information, copying and reproduction of bibliographic information, and transforming the format of storage (Hayes, 1997).

2.11 Chapter Summary

This chapter reviewed relevant literature that was related to the introduction, implementation and management of an ILMS at various academic institutions. This was done by looking various studies done in various countries, internationally, nationally, and locally including studies in KZN on the use and choices made pertaining to an ILMS. Having looked at various studies done, the researcher then looked at the benefits of using an ILMS. Lastly this chapter also discussed theoretical framework and looks specifically at two theories which were the Systems theory and Information Systems Model as the basis of this study.

Chapter Three

RESEARCH METHODOLOGY

3.1 Introduction

This chapter is referred to as the research methodology chapter because it will explain how the research was conducted. This chapter will further provide the research design of this study as well as the processes that will be used, without which this research will not have been undertaken. These will include identifying the research paradigm, and the research methods. In the research design the researcher will identify which groups of people should be included in the study as well how data will be collected and analysed. The chapter also focuses on the research methods and instruments chosen to investigate the implementation and administration of an Integrated Library Management System (ILMS). In this study interviews with staff were conducted in various academic institutions such as MUT, DUT, and UKZN. These interviews were used to obtain answers pertaining to migrating to the new ILMS, to identify the present status of the ILMS as well as to obtain current data about using the ILMS.

3.2 Research Questions for the Study

The following were the five-research question for the study:

The five key questions asked in this study were the following:

- vi. What difficulties and problems are experienced by users of the Universal Knowledge Software (UKS) library management system?
- vii. What are the challenges experienced by users of the Universal Knowledge Software across the academic libraries in KZN?
- viii. To what extent is the vendor of the library management system aware of the challenges?
- ix. What type of solutions can the vendor suggest to solve these problems?
- x. What strategies can be used to improve the implementation and administration of an integrated library management system in KZN academic libraries?

From the researcher's experience, migrating to the new system created problems for consortium members for a variety of reasons. The challenges related to the use of the

ILMS in the academic libraries of the institutions will become evident and the interviews will be used to provide answers to the research questions of this study.

3.3 Research Design

Welman (2012) describes the research design as the plan according to which we obtain research participants and collect information from them. In this plan researchers describe what is going to be done with the participants, with a view to reaching conclusions about the research problem. The author went on further to say that in the research design researchers must specify the number of groups that will be used, how the groups will be selected, if the population involved will be selected or will be assigned randomly to groups. Based on the above this section will discuss the plan, structure and well as how the ILMS was implemented in KZN academic libraries.

3.4 Research Methods

Henning (2007) defines methodology as a coherent group of methods that complement one another and can deliver data and findings that will reflect the research question and suit the research. According to Lapan (2012) research methodology refers to the strategies that researchers use to ensure that their work can be critiqued, repeated and adapted. These strategies guide the choices researchers make with respect to sampling data collection, and analysis. Research methodology comprises two approaches, according to Newman (2003), which are qualitative and quantitative. Quantitative methods are generally geared towards documenting subject attributes expressed in quantity, extent, or strength.

As defined by Denzin and Lincoln (2005) qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that makes the world visible a series of representatives, including field notes, interviews, conversations, photographs, recordings, and memos to the self. Qualitative research involves an interpretive, naturalistic approach to the world. Based on the above definition, this implies that that qualitative researchers study things in their natural settings, attempting to make sense of or to interpret the phenomenon in terms of meanings people bring to them. Qualitative researchers not often try to simplify what they observe, as an alternative they recognize that the issue they are

studying has many dimensions and layers and try to portray the issue in a versatile form (Leedy and Ormrod, 2005).

The author went on further to say that qualitative research can reveal the nature of certain situations, settings, processes, relationships or people. Lapan (2012) advocates that qualitative researchers are most likely to raise research questions based on three factors: (1) what potential has meaning to them; (2) what they read and discover to be gaps in the literature; (3) what they perceive during their first exposure to the field. The author went further to say that the researchers usually frame their questions based on the research paradigm with which they feel most comfortable. This study uses the qualitative approach to investigate ILMS in KZN academic libraries taking cognisance of the fact that the researcher was aiming at having a general assessment of opinions, attitudes, or feelings of people (Dawson, 2007).

Qualitative research methods are used in face-to-face situations in which the researcher is relating to the respondent or the setting (Lapan, 2012). Moreover, in qualitative research the researcher becomes the primary research instrument and participants teach the researcher about their lives. This implies that information is always filtered through the exchange between the individual, the research setting and the respondents. Qualitative researchers try to reduce elements of bias when conducting research by eliminating personal characters that could interfere with communication. This they do by constantly reflecting on how they may be influencing the research setting and the research conversations by their identity, language capacity, knowledge, and power they have to access resources desired by the respondents.

3.5 Research Paradigm

The research paradigm describes a cluster of beliefs and dictates which scientists in a discipline influence what should be studied, how research should be done, and how results should be interpreted (Bryman, 2012). The author stated that it is important to understand that by following a paradigm or research tradition, researchers adopt a specific way of studying phenomena relevant to their field. In view of the above one can further elaborate that by understanding what paradigm the researcher is ascribing

to can help determine what research questions are considered worthy of investigation as well as what processes required for the answers to these questions, are acceptable.

Cilliers (2014) explored three dominant traditions in research namely the positivist, interpretive and critical realist traditions. This study is aligned to the interpretivist paradigm which relies heavily on naturalistic methods of interviewing observing and analysis of existing texts. The interpretivist researcher enters the field with some sort of prior insight of the research context but assumes that this is insufficient in developing a fixed research design due to complex, multiple and unpredictable nature of what is perceived as reality (Hudson and Ozanne, 1988). This study followed the above paradigm because the researcher had some knowledge of the ILMS but it was not sufficient and the researcher also wanted to gain more knowledge and understanding from the participants being interviewed.

The researcher remains open to new information throughout the study and lets it develop with the help of informants. The use of such an emergent and collaborative approach is consistent with the interpretivist belief that humans have the ability to adapt, and that no one can gain prior knowledge of time and context bound social realities (Hudson and Ozanne, 1988). The goal of interpretivist research is to understand and interpret the meanings in human behaviour rather than to generalize and predict causes and effects (Neuman, 2000, Hudson and Ozanne, 1988). For an interpretivist researcher it is important to understand motives, meanings, reasons and other subjective experiences which time and context are bound. Therefore, for this study understanding the implementation of the ILMS in various academic institutions as well as librarians experiences and challenges about adaptation to the systems was very important and how these changes were going to influence their routine tasks was also important.

3.6 Population and sampling

This study defines population as the study of object and consists of individuals, groups, organisations human products and events, or conditions to which they are exposed. The concept of population encompasses the entire collection of all units of analysis about which the researcher wishes to make specific conclusions (Welman, 2012). The

population is also the full set of cases from which a sample is taken. Welman (2012) further said the concept of population is a group of potential participants to whom you want to generalise the results of a study.

UniZul was also going to form part of the population of this study however the Library Director declined to grant permission for the research to be undertaken. Therefore, the population was drawn from the remaining three institutions. The total population of this study was 80 and this included all librarians that work with ILMS as part of their daily activities but not all were interviewed. Based on this study the population was drawn from five professional librarians from MUT, five from DUT, five from UKZN, and one Library Manager from each participating institution. The interviewed individuals consisted of Circulation Librarian, Cataloguing Librarian, Acquisition Librarian, Serial Control Librarian, Systems Librarian, Library Managers and two Representatives from Universal Knowledge Software.

3.6. 1 Sampling

Two types of sampling are identified by Welman (2005) which are probability sampling and non-probability sampling. The probability sampling means that the probability of any element or member of the population will be included in the sample. Non-probability sampling is when the researcher cannot specify the probability meaning that some elements have a chance of being included. In some examples of non-probability samples, some elements have no chance of being included. The advantage of probability sampling is that it enables researchers to indicate the probability with which sample results deviate from the corresponding population values. Unlike probability sampling, non-probability sampling enables researchers to estimate sampling error which statistical term is relating to the unrepresentativeness of a sample. The sampling frame included at least one user per Module, the Librarian, the Systems Librarian as well as all the heads of Institutions. It also included two representatives from the Universal Knowledge Software who are the Software Support and ILMS software vendor. All the participating librarians will be interviewed. Through telephonic enquiries the researcher gathered the following information which is discussed in the following table:

Table 3: Population and sample of the study

Institution	Function	Responsible Staff Member	Sample
MUT	Circulation	1x Librarian 2x Librarian Assistants	1
	Cataloging	1x Librarian 3x Cataloging Staff	1
	Acquisitions	2 x Acquisitions	1
	Serial Control	1x Serials Librarian	1
	Systems	1x Systems Librarian	1
	Management	1 x Senior Director	1
TOTAL		12 Staff Member	6
Universal Knowledge Software (UKS)	Support	2 x Systems	2
DUT	Circulation	2x Librarian 4x Library Assistants	1
	Cataloging	1x Librarian 4x Library Assistants	1
	Acquisitions	1x Librarian 2x Library Assistants	1
	Serial Control	1x Librarian 4x Library Assistants	1

	System	1xSystems Librarian 2x Assistants	1
	Management	1x Director	1
TOTAL		23	8
UKZN	Circulation	1x Head Circulation 4xLibrary Assistants	1
	Cataloging	1x Head Cataloging 5x Librarians	1
	Acquisitions	1xHead Acquisition 5xAssistant Librarian	1
	Serial Control	1xLibrarian	1
	System	1xSystems Librarian 5x Assistants	1
	Management	1xDirector	1
TOTAL		25	6

The total number of staff using the ILMS is therefore 80

According to Kumar (2012), purposive sampling was a researcher chooses only those people that likely had the required information, as well as being willing to share it. Blesset al., (2013) reasoned that purposive sampling rests on the assumption that the researcher knows what type of participant is needed. Based on this study the researcher used purposive sampling because the researcher wanted to interview participants that were using the ILMS for daily operations. The researcher decided to choose only professional librarians because of their expertise and that she wanted to gather more knowledge and information about the ILMS. Interviewed Library

Management that involved in decision making concerning the ILMS, including budget and staff allocations to the project, and would be able to provide the researcher with the relevant information. The total of 20 out of 80 staff was selected to be interviewed. Most of the staff members interview were using the ILMS and/or were library management.

3.7 Data collection instruments

In this study data was collected by conducting face-to-face interviews using structured interview schedule. The interviewee is believed to give true or real, subjective versions of facts, opinions and feelings as the interviewee experiences them (Gubrium and Holstein, 2009). An advantage of the interview is that if many interviews are conducted with different people and with the same person at different times, there may be more reliability of data and a shared understanding of different subjects may be achieved (Henning, 2007). The role of the interviewer is to be a neutral facilitator who elicits information from the interviewee who gives responses with the help of questions and prompts in an atmosphere of trust and accountability. The transcribed information or data are then analysed by coding units of analysis and looking for broader categories and themes.

3.7.1 Advantages of face to face Interviews

Neuman (2006) identified the following advantages and disadvantages of face to face interviews:

- i. They have the highest response rates and permit the longest and most complex questionnaires.
- ii. Well-trained interviewers can ask all types of questions and can use extensive probes.

3.7.2 Disadvantages of face to face interviews

- i. High cost is the biggest disadvantage of face-to-face interviews.
- ii. Interview bias is also greatest in face- to-face interviews.
- iii. The interviewer's appearance, tone of voice, question wording may affect the respondent.

- iv. Interviewer supervision is lower than for telephone interviews that supervisors monitor by listening in.

3.7. 3 Structured interviews

In a structured interview the interviewer puts a collection of questions from previously compiled questionnaires, known as an interview schedule, to a respondent face-face and records the latter's responses (Welman, 2012). The author stated that in a structured interview the interviewer was restricted to the questions, their wording, and their order as they appear on the schedule, with relatively little freedom to deviate it. Each question was read and the response is recorded on a standardised schedule, usually with pre-coded answers. In cases of social interaction was required between the researcher and the respondent, for an example, if further explanation was required, it was essential that questions must be read in the same tone of voice to eliminate elements of biasness.

Interviewers should be properly trained. They should also be thoroughly familiar with the Interview Schedule questions so that they may read them fluently or even from memory without deviating from the questions as they are formulated. According to Welman (2012) interviews demand real interaction between the researcher and the respondent. To be able to run the interview efficiently and without any disturbances, the researcher needs to know the respondent, his background, values, and expectations. Interviewers should, furthermore, know how to respond in specific situations, for example if the respondent appears to be surprised or upset about a specific question, the interviewer may repeat the question, without paraphrasing it.

3.7.4 Conducting Structured Interviews.

The researcher contacted various institutions to secure appointments to conduct interviews with relevant librarians that are currently using ILMS. The researcher wrote a letter to various institutions requesting permission to conduct the interviews at the respective institutions. This letter included an interview schedule with predetermined questions to guide librarians on the questions to prepare for the interview, as well as the duration of the interview. Upon receipt of the questionnaire interview appointments were secured with relevant librarians.

3.8 Interview Schedule

In constructing the interview schedule the researcher looked at the objective of the study and the five research questions. It was important to ensure that the interview schedule made sense to the respondents. According to Babbie and Mouton (2011), the format of the interview schedule was modified according to the current study pattern and topic.

The Interview Schedule was written in English and was categorized to suit the relevant librarians, for example, the Interview Schedule constructed for Library Management, all librarians that included Circulation, Acquisitions, Serials Control and Cataloging, and one designed for Systems librarians and the last one was for staff of Universal Knowledge Software. One librarian per section was interviewed (Table: 3). The questions were categorized into Section A with four questions and Section B with 11 questions. The interview schedule for Systems Librarians was divided into two sections whereas the Universal Knowledge Software consisted of 10 questions. The Universal Knowledge Software interview schedule had two sections. The first section included four demographic questions and Section B with 10 questions. The demographic questions for Universal Knowledge Software were included because the researcher wanted to find out about the age, sex, section and position of the respondents.

The second section included questions, on how they service their customers, how they market their products, if they inform customers on new trends and developments, what type of support they offer to their clients in terms of new training, and how their customers were serviced. They were also questions about how do they dealt with complaints and what type of solutions were offered to clients and lastly how were clients chosen. The interview schedule for Librarians also included questions pertaining to experience, age, as well as the module that they were using. Other questions pertained to the user friendliness of the module, the problems experienced on the system, and how the problems were addressed. Other questions asked if they were happy with the system, how records were migrated and if there were problems with records how they were resolved and the turnaround time in solving the problems. The interview schedule pertaining to Library Management included sections on their

experience, age, and what motivated the change to the new system, who was involved in the change, how was the system funded, and strategies employed to improve the usefulness of the system as well as if the system was beneficial, and lastly, if they have achieved the value of their investment. The interview schedule for System Librarians included questions related to demographics, their designations, benefits of using the system, the change to the new system, if the system had any back up plan, if the system has improved service delivery, if the system is able to generate reports

3.8 Pretesting of the research instrument

The research instrument was pretested prior to administering it to the study population. Pretesting of Interview Schedules is one of the tools that may be used for content validation (Ngulube, 2005). Pretesting would help indicate whether the questions can be completed within a reasonable period. It would also indicate whether the language used in the questions is simple enough to be understood by the respondents, that way saving the researcher time and money. According to Babbie and Mouton (2011), no matter how careful you are in designing a data collection instrument, there is the possibility of errors, like ambiguous questions that people cannot answer, or questions in violation of some rules. In the case of questionnaires, it would be costly to print questionnaires that would not be understood by the respondents, because they would not provide the necessary expected data, which might necessitate designing and printing another questionnaire.

The researcher pretested the interview schedule by conducting interviews with the seven librarians at Mangosuthu University of Technology who were using the ILMS as part of their daily operations. The seven librarians interviewed were not part of the participants interviewed but they were also using the ILMS as part of their routines. This was done in line with the pre-test requirement given by Kumar (2012), which recommends that as a rule, the pre-test should not be carried out on the sample of your study but on a similar population which you are not proposing to study. The respondents for pretesting made suggestions and highlighted the ambiguous questions. The questions were adjusted and revised according to their suggestions. No major changes were done on the interview schedule except for rewording some of the questions so that they were clearly understood by the respondents.

3. 9 Administration of the interview schedule

The interviews were conducted by the researcher in person. The researcher secured appointments with relevant librarians in their various institutions. The appointments were scheduled depending on the librarians availability. Various time-slots were given to the researcher to ensure availability of staff members in their respective departments. Interviews were conducted on a one on one basis. A tape recorder was used during the interview process. To prevent bias, the researcher did not debate the answers provided by the respondents, but accepted all answers as presented but the questions allowed the researcher to probe for further clarity. The researcher was objective throughout the interview sessions. The interviews were conducted with the librarians, library management, Systems Librarians as well as two representatives from UKS who Sales Consultants are. The first interview was held on 25 November 2014 and the last interview was held on 28 February 2015.

3.10 Ethical considerations

This study related to the researcher conducting interviews at various academic institutions in KZN so it was essential for the researcher to establish how ethical considerations were going to be addressed.

3.10.1 Informed consent

In this case, the researcher had to get permission from the academic institution to conduct interview. This was done through a letter wrote to the institutions asking for the permission to conduct research. The consent letter needs to be accompanied by a letter in which academic institutions also consent to the use of their sites and name This meant that the researcher had to schedule appointments with relevant librarians. The researcher had to fully inform the librarians to be interviewed and the purpose of using the outcomes of the research. They also needed to know that their privacy and sensitivity will be protected about the recorded information.

The main aim for doing this was to ensure that there were no unfulfilled expectations. Therefore, the participants in the study eventually agreed to participate, their decision was informed by knowledge about the research. The researcher also made it clear

from the outset that the respondents were at liberty to withdraw from the study at any given time should they feel it is no longer conducive for them to participate.

3.10.2 Confidentiality and anonymity

The process of data collection caused no harm or embarrassment to the participants since the correct data collection instruments were used. For maintaining confidentiality various pseudonyms have been used to ensure confidentiality and anonymity. The participants were guaranteed that all the information gathered for this research will remain confidential. Furthermore, the researcher informed the participants that the discussions held for data gathering would be kept confidential. Lastly, participants were informed that the results of the study would be specially used to inform further research and practice.

3.11 Trustworthiness

In a qualitative study, the key principle of good qualitative research was found in the notion of trustworthiness: neutrality of its findings. Trustworthiness of the study refers to the degree of confidence in data interpretation, and methods used to ensure the quality of a study (Polit and Beck, 2014). Although most experts agree trustworthiness was necessary, debates have been waged in the literature as to constitute of trustworthiness (Leung, 2015). Criteria outlined by Lincoln and Guba (1985) were accepted by many qualitative researchers as following: (1) Credibility (2) Dependability (3) Confirmability and (4) Transferability.

First, credibility of the study, and the findings were the most important criterion (Polit and Beck, 2014). This implies that the study was conducted using standard procedures used in qualitative research. It also involves establishing that the results of qualitative research are credible from the perspective of the participant in the research. Second, dependability refers to the stability of data over time, and over conditions of the study. It is concerned with whether the researcher would obtain the similar results if he/she could observe the same thing twice. The researcher was responsible for describing the changes that occur in the setting and these changes affected the way the researcher approached the study. Third, is the transferability, that is the extent of findings were useful to persons in other settings, the third aspect was

different from other aspects of research in that readers actually determine applicability of the findings to their situations.

Researchers support the study's transferability with a rich, detailed description of the context, location, and people studied, and by being transparent about analysis and trustworthiness. Researchers need to provide a vibrant picture that will inform and resonate with readers (Amankwaa, 2016). Lastly, confirmability is the neutrality or the degree to which the findings should be consistent and repeated (Polit and Beck, 2014). Qualitative researchers should keep detailed notes of all their decisions and analysis as it progresses. In some studies, they may be discussed in peer –debriefing sessions with a respected qualitative researcher. These discussions prevent bias from only one person's perspective on the research.

3.12. Data Analysis

Data analysis according to Schwandt (2007) refers to high level of rigorous, systematic, disciplined, and carefully documented methods. The design and plan for analysis depends a lot on the general approach taken and the type of outcome expected (Bernard, 2010). The author stated that differences exist between the two approaches, namely exploratory (content driven) and confirmatory (hypotheses driven) and established the differences.

3.12.1 Thematic Analysis

According to Bernard and Ryan (2010) thematic analysis, as in grounded theory and development of cultural models, requires more involvement and interpretation from the researcher. These authors further described thematic analyses as moving beyond counting explicit words or phrases and focus on identifying and describing both implicit and explicit ideas within the themes data. Bernard and Ryan (2010) stated that codes were then typically developed to represent the identified themes and applied or linked to raw data as summary for later analysis. Such analysis may or may not include the following:

- Comparing code frequencies
- Identifying code co-occurrences
- Graphically displaying relationships between codes within the data set.

All the analytic techniques described by Bernard and Ryan (2010) were useful and each had its own place in the world of research. Qualitative research in the social sciences refers to textual data generated from in – depth interviews and focus groups are often transcribed verbatim from audio recording and to a lesser degree, participant’s observation notes. It is also important to note that qualitative research allows research participants to talk about the topic in their own words free from the constraints of fixed response by the kind of fixed response questions as seen in quantitative studies. Another strength of qualitative research is the ability to ask questions. Those questions are meaningful to participants and likewise to receive responses in the participants’ own words as well as the benefit of inductive probing whether in in-depth interviews or focus groups, or participants observation to allow the researcher to clarify expressions or meaning and further permits the participants to tell their story.

3.12.2. Content Analysis

Although all methods as explained by the researcher were relevant, for the purposes of this study, qualitative content analysis was used for data analysis because it is easy to access and works on one level of meaning and also eliminates bias in the investigative processes. Data collected from interviews was coded and analyzed using manual content analysis. Content analysis according to Maree (2010) is “a systematic approach to qualitative data analysis that identifies and summarizes message content”. But before coding, collected data will be evaluated for ambiguity, consistence and relevance.

3.13 Chapter Summary

The researcher in this chapter painted a picture of the research design. This was done by first stating the research questions of the study. The research design was then discussed to make sure that the clearly followed plan and understood in this study. The researcher gave a description of the purpose of a design method that was selected over the others as well as mechanism and mission of the selected participants. The chapter also discussed methods used and the mechanism of collecting data. Other topics discussed included construction of the research

instrument, pretesting of the interview schedule, administration of the research instrument. This chapter also looked at ethical issues towards conducting research where issues like informed consent, confidentiality, anonymity and trustworthiness were discussed. This chapter also discussed thematic and content analysis

Chapter Four

DISCUSSION AND PRESENTATION OF RESULTS

4.1 Introduction

This chapter discussed the findings of the data collected from interviews conducted with the respondents in their places of work. In this chapter the research results and discussion are presented together. According to Kumar (2012) there were three ways to discuss findings in qualitative research i.e.

- (1) Developing a narrative to describe a situation, event or instance
- (2) Identifying the thematic analysis as well content analysis as main themes that emerge from field notes or transcriptions of the in-depth interviews and writing about them, quoting extensively in verbatim format
- (3) Quantify the main themes to provide their prevalence and thus significance.

Kumar (2012) stated that content analysis means analysing the contents of interviews or observational field notes to identify main themes that emerge from the responses given by respondents or observation notes made by the researcher. Content analysis is the method that is used to analyse and discuss the contents of interviews and to identify the main themes that emerged from the responses given by the respondents. The results of the interviews were analysed according to the following four categories:

- i. Library staff biographies
- ii. Pre-Implementation and Administration of ILMS.
- iii. Implementation and Administration of ILMS
- iv. Post Implementation and Administration of ILMS

These categories were based on the challenges and experiences shared by four groups of respondents: Librarians, Systems Librarians, Library Management, and staff of Universal Knowledge Software (UKS) during the implementation and administration of the ILMS, the SirsiDynix Symphony, the one used by all academic libraries in KZN. The first category was further developed into four sub-categories (biographical sketches) that formed the basis for understanding the experiences of Librarians, Systems Librarians, and Library Management as well as staff of the Universal

Knowledge Software who was the local vendor for the ILMS. The biographical sketches for the following:

- Biographical sketches:
- Librarians
- Systems Librarians
- Library Management
- Universal Knowledge Software

The biographical sketches for all participants were done to gather a profound understanding of all of them as well as to gather their experiences and understanding regarding the implementation and administration of the ILMS.

4.2 Biographical sketches of Librarians

The researcher secured appointments telephonically with all the Librarians that were going to be interviewed at their respective institutions. These interviews were undertaken with the aim of establishing whether the level of happiness of Librarians with the implementation and administration of an ILMS as well as to find out if they were experiencing any challenges related to post implementation of the system. The nature of the study demanded that the researcher visit the Librarians at their places of work to conduct these interviews personally. All these interviews were done from 25 November 2014 to 28 February 2015 at various institutions. It was during these interviews that the researcher got to understand the roles played by librarians in their respective departments and the implementation of the new system was going to benefit them. The researcher also decided to protect the participants by giving them pseudonyms to maintain anonymity and help them to participate freely.

i. Ayabonga

Ayabonga, a male of 25 to 30 years, is the Acquisitions Librarian using the Acquisitions module. Ayabonga has been working for MUT for the past 5 years and had used SirsiDynix Symphony. Ayabonga revealed that they “were informed about the changes to the system and trained on the use the new system”. Even now the new changes and developments were being implemented. He also confirmed that the training was on-going especially with new trends. Universal Knowledge Software was always available to train and assist them if they encounter problems and challenges.

Ayabonga said he was “currently happy with the new system and had benefited a lot from the system. The system was user friendly and enabled him to move between various Modules without logging out of the system”. Ayabonga further said “the system came with additional features that enable them to perform their work more effectively”.

i. Siphokazi

Siphokazi is a female of 30 to 40 years working as a Cataloguing Librarian and using the Cataloguing Module. Siphokazi said “she was not working at MUT during the first implemented of the system but had used other systems before, like Millennium”. Siphokazi further said “the system comes with new features like the Report and Serials Modules”. Siphokazi revealed that “the system was user friendly and easy to navigate and go back to save”. Siphokazi further said “the system enables you to delete and start over again to correct an error/s. She indicated that “there was communication between the library management about the changes from the old system to the new system”.

Siphokazi had benefited from the new system because easy to use and if encountering problem/s one can restart with your records. However, there were challenges with the system because at MUT they do not have full bibliographic rights to do any changes or edit the record without consulting other participating institutions in this case the University of Zululand. Siphokazi also shared the view that “they cannot do anything on the records that were created by the University of Zululand”. She felt that “the system does not meet the expectations of the librarians somehow” and further suggested that “it would be ideal to have their own system by not sharing the catalogue because of the existing challenges”.

ii. Mawande

Mawande, a male of 30 to 40 years old, has been working as a Periodicals Librarian at MUT for four years. Mawande was using the SirsiDynix and a Serials Module. Mawande said that “he was using the URICA library system before the introduction of current system. Furthermore, stated that URICA library system was not web-based compared with the current system”. A change from URICA library system to SirsiDynix Symphony had brought about a huge improvement in his work. Mawande reported

that “during changing phase was initiated the management communicated with the participating institutions as this change affected everyone and that training for the new system provided by the vendor”.

Mawande highlighted the benefits of using this ILMS as “it gives one an opportunity to first go to the test server and test if something was workable or not before going to the live server”. Mawande indicated that “the system was meeting his expectations because he was able to go across to other modules like the Acquisitions Module without exiting the system”. Mawande further said “the system enables him to create and order new records”. Mawande further suggested that “there should be further room for system developments so that they were able to realise the full benefits of using the ILMS to its maximum”.

iii. Vusi

Vusi was a male of 40 to 49 years old had worked as a Circulation librarian for MUT for a couple of years and used the Circulation Module. Vusi reported that “he was using the URICA library system before using SirsiDynix Symphony before the implementation of the new system in 2005”. Vusi further said “all staff members were informed about the new changes”. Vusi said that “they were part of the change as their inputs and suggestions contributed to the change”. Vusi said that “they were involved from the planning phase until the system was implemented. They were trained on the new system and part of the team responsible for cascading training to other colleagues”. Vusi was of the view that “the system had improved their work flow and now able to deliver efficient services to library users compared with not web based URICA library system”.

The new system allowed them to modify and register new users and inform the staff members the frequency of a specific book has been borrowed by the user. This report was not possible in the case with the previous system. So, implementation of the new system benefitted MUT, as they are able to check the availability of the books from other participating institutions on the consortium. The system has “the facility to check library books in and out and make and cancel reservations”, said Vusi. The new system also came with a Reserve Module for placing and creating reservations at the Short Loans Section. This Module allows lecturers to reserve books for students as well as to keep prescribed books to allow students access to borrow such books for a

specified amount of time. Vusi added that “the system also came with additional features like a print screen and help feature they consult whenever they are not sure what to do”.

iv. Aphiwe

Aphiwe was a 50 to 60 years old female that had been working in the library for 19 years. She started working as a Stack Attendant, then as a Library Assistant and now an Acquisitions Librarian at DUT. She is currently using the SirsiDynix Symphony and the Acquisitions Module. Aphiwe said “she is aware that the system also came with other Modules but familiar with others such as the circulation Module and the cataloguing Module”.

Aphiwe was happy with the changes to the new system. She said “the system was user friendly and allows you to correct mistakes that even the interface of the simple system that allowed you to move around the Modules. Aphiwe stated that “the management informed the staff members about the change to a new system. Groups were formed representing all the Modules like circulation, acquisitions, cataloguing and periodicals. The main aim of forming these groups was to compare the system with the previous system. She said that a series of demonstration were made by various suppliers in their place of work. SirsiDynix Symphony was their system of choice based on the availability packages offer at that time. Aphiwe indicated that “not all staff members welcomed this change. Some were not happy but indicated the change was essential as all academic institutions use this system. The only challenge that she pinpointed was that she needed to learn more and familiarise herself with the system but happy with the system”.

Aphiwe suggested that “the system was beneficial and adding value. For one to realise the system usefulness one needs to use the system to maximum and learn more from the features that were built within the system”. Aphiwe highlighted that “challenges of the system were corrected and solved internally before being escalated to the suppliers so all protocols internally first”. Aphiwe reported that “the system does meet their expectations especially because it allows them to generate reports and statistics”.

v. Mbali

Mbali was a female between 30 to 39 years of age. She worked as a Cataloguing Librarian and uses the Cataloguing Module. She was aware that the system came with other Modules. She was more familiar with the Report Module and uses it to create labels. Mbali said that “the System was user friendly and easy to use as it had the tools needed for the work”. Mbali reported that “the system allowed you to right click and it has a Resource Description and Access (RDA) tool kit facility and works well with the international standards”.

Mbali shared the same view with her colleagues as she confirmed that “there was communication during the change to the new system implementation. During the implementation she was not working at DUT. When she started working at DUT, DUT was already using this system”. Mbali reported “that every library was using the same system”. This change was initiated because everyone wanted to use the international standards. Mbali indicated that “there were benefits of using the system in that it enabled users to use multiple windows. For example, as a Cataloguer she was able to move to the Acquisitions Module without logging out of the Cataloguing Module and as well as to the Serials Module as well”. Mbali further said “the system had challenges such as that the system was not able to notify you if you had inputted a wrong tab or wrong indicator the system did not indicate that there was a wrong indicator”. She also highlighted “there was a problem of duplication of records during the sharing of the system especially during downloading of the records on the order cards”. Mbali further said “the catalogued record did not show problems immediately when it was downloaded, but only appeared the next day on their bibliographic records”.

Mbali said “all problems experienced were reported to the Systems Librarian. Mbali further highlighted that if they encountered minor problems they dealt with them internally, except for complicated these were cascaded to UKS”. Mbali also said “the system came with study guides and user manuals that could be consulted when they experienced problems. The system benefitted them in that it made it easier to catalogue records using RDA”.

vi. Bongi

Bongi was a female of between 40 to 49 years of age with vast years of experience in the library. She was currently working as Serials / Acquisitions Librarian and using a Serials Module at DUT. She had also used the Cataloguing Module as well as the Acquisitions module. Bongi shared similar thoughts with her colleagues and said that “the system was user friendly because the Modules are clearly indicated and one can use the drop down boxes for further clarity”. The Modules were simple and easy to work with. Bongi agreed that “the system was standard and easy to use”.

Bongi highlighted that “implementing the SirsiDynix Symphony had been very beneficial because all staff were involved from the initial plan until the system started running”. She further said that ‘staff members from each department were given an opportunity to view the system. The vendors came to the institution to do demos and had to choose between the Innova and SirsiDynix Symphony DUT chose SirsiDynix Symphony because the Modules were quite simple. Bongi further said “the drive to move to an ILMS was initiated by all academic institutions that identified the need to move to the new system and be at the cutting edge of technology”. There were representatives from all academic institutions during the demonstrations and presentations were made by the vendor. Bongi said “the only problem that she had experienced with the system was that of running reports”. Bongi raised concerns regarding running of reports saying that “they were a bit more difficult to understand and not as straightforward as they seemed. They were too many steps to follow during compiling and running of the reports”. Bongi also highlighted that “the system had met their expectations with the new features being added as well as the improvements made on the system. It had made their life easier and they can actually see that the library was moving forward and they were able to work more efficiently and effectively”.

vii. Amanda

Amanda was a female of between 50 to 60 years old working as a Circulation Librarian at DUT for over six years. Amanda was using the ILMS daily to perform her work activities and uses the Circulation Module. Amanda was also familiar with other Modules that were in the system such as acquisitions, cataloguing, circulation, reports configuration, off-line mode, and academic reserves.

Amanda confirmed that “the system was user friendly. Amanda also said “the system was easy to operate, understand, and they were able to train new staff within a short space of time with the use of the system”. Amanda further said, “implementing the ILMS had benefitted her in the sense that she was able to generate reports of various types like usage stats, edit new items , capture new records, place holds as well and able to do an inventory. Amanda raised concerns with the system by stating that “not all the functions were fully activated and further said that some functions were manually operated like your in-house statistics and book drop box. But she agreed that the system still met their expectations”.

viii. Sindi

Sindi was a female of between 40 to 49 years of age and working as a Circulation Librarian at UKZN and uses the Circulation Module. She had also worked at Westville Campus and moved to Howard College in 2014. Sindi indicated that “the system was user friendly because when they moved to the ILMS, she did not need any more training as the system was simple and straightforward”. Sindi also indicated that “she taught herself other modules as they were self-explanatory”. Sindi said that “she had benefitted from the system as it met the needs for issuing and returning books as well as being able to register new users”. Sindi further said “she could not compare the ILMS to any other system because she had not used any other systems before this as UKZN was her first employer”

ix. Senamile

Senamile was a female aged between 30 to 39 years and worked in the library for the past five years. Senamile was using the SirsiDynix Symphony ILMS and using the Cataloguing module as the Metadata Librarian at UKZN.

Senamile agreed with her colleagues because she also said that “the system was user friendly as it came with different modules namely: circulation, serials, acquisitions, cataloguing, academic reserves and reports”. She agreed with her colleagues about the user friendliness of the system. Senamile further suggested that “Universal Knowledge Software technician were very helpful to assist when they encountered problems with the system. Senamile further stated that there was communication about the changes to the new systems”.

Senamile highlighted that “the benefit of using the ILMS was that the system enabled them to use ILINK which allowed students to check the library holdings, as well allowed users to search across the library catalogue, across all UKZN campuses, as well as the running of reports”. Senamile cted another problem pertaining to the system was that “the system was not able to notify them if they had made an error by underlining or highlighting that specific error so that the at its clear”. Another challenge raised by Senamile was that “the system was costly as it charged them for the running of reports”. Senamile highlighted that “they experienced problems with the merging of records duplications as they had to delete some of the fields, and they were some inconsistencies when some records were captured. Senamile said that the system met her expectations in the sense that she was able to do her work more efficiently now”.

x. Siyabonga

Siyabonga was a male of between 50 to 60 years who started working in 2005 in PMB and moved to UKZN in 2009. Siyabonga is working as a Periodicals Librarian using the SirsiDynix Symphony ILMS is currently using the Serials Module but is also familiar with other modules like cataloguing and reports.

Siyabonga said that “the system was user friendly due to the availability of functionality that could be used to manage the serials tools, the system was able to save and access journals, came with tools to manage journals and funds, your orders as well as to issue and catalogue journals”. The only problem they encountered with the system “was accessibility of unstable internet network”. At certain times the server took longer to download records. Siyabonga further said that “they were consulted during changes to the new system and trained on the use of the system”. Siyabonga also highlighted that “there was IT departments responsible for troubleshooting each time they experienced complications. If the problem was not sorted internally it would be escalated to Universal Knowledge Software by sending them print screens detailing the nature of the problem”.

Siyabonga said “they had benefitted from the system in the sense that the system came with functionality that they needed for ordering, checking in, funding, as well as for making payments, so all in all, the system had sufficient tools. The system also

had features that could be used to access off campus connections and a tool for running reports”.

xi. Philani

Philani was a male of between 40 to 49 years of age. Philani had been working at UKZN for the past 10 years using the Acquisitions Module. Philani had also used other Modules before such as Circulation, Reports, Cataloguing, Reserves and ILink for the past 10 years. Philani agreed that the system was user friendly. Furthermore, indicated that they were informed during implementation of changes and proper consultation. It was a move from URICA library system to ILMS affected all staff members.

Philani said “the benefits of using the system was cost effective with cataloguing and authority control. Philani cited that the system allowed them to customise records specifically for the library by using Web Services and Application programming interfaces”. Philani indicated that SirsiDynix Symphony met the needs of the consortium and supports all formats e.g. PDF to audio and SMS. Philani further said System Representatives were very helpful to solve the entire network problems If they cannot solve them they were reported to the institution hosting the server”.

4.3 Biographical sketches of Systems Librarians

i. Thembi

Thembi was a female of between 40 to 49 years of age. She was working in MUT as a Systems Librarian. She had only been working at MUT for the past six months. Thembi had used other systems before like URICA Library system, Pulse and Millennium. She stated that most libraries were using the new system. Thembi highlighted that “the reason for the change to the new system was more about upgrade. She further said that the new system was better than the manual system as it made easier to deal with the records, the issuing of books as well as compiling statistics and generating of various library reports depending on the needs of staff”.

Thembi also said that “moving to a new system from URICA library system was good in the sense that the new system came with different features. Most of the features were unavailable on the previous system”. Thembi further said that “the new system

was more interactive as it enabled librarians to communicate with one another and could talk about issues that affected their operation. The new system enabled users to locate their books that were due and send reminders, sms notifications and e-mails to the users and this was done by programming the system". Thembi indicated that "the problems of sharing the catalogue had both advantages and disadvantages. Some challenges come with the catalogue as institutions did not had full bibliographic rights and control to all records meaning that you cannot change a thing without consulting the other institutions".

Thembi said that "the system was beneficial because during the migration of records they were able to find ghost records. The system further allowed the library to locate and retrieve information that they thought it was deleted and not even show if it existed in library catalogue". Thembi said "problems that they encountered while using the system, they try and solve them first before reporting them to Universal Knowledge Software, especially human error problems. For example, records that were instantly ordered by MUT but appeared under Unizul and wrongly captured those were corrected. The new system had benefitted MUT as it has improved service delivery even though some features had not been activated. As the years progressed there was hope that those features will eventually be utilised to the full benefit of the system".

ii. Ningi

Ningi was a female of 40 to 49 and had been working at DUT for the past 25 years. She was the co-ordinator of IT and Systems at DUT. Ningi had used other systems like URICA library system but had used SirsiDynix Symphony since it was implemented in 2005. Ningi said that it was Library Management that decided on the change to the new system but all staff were consulted. The reason for change was both for migration and upgrade. Ningi said all staff members used the system for different reasons depending on the nature of their work but the systems come with different modules. Ningi indicated that "the ILMS was very useful as it allowed users to do reserves through the library. Ningi also highlighted that they had experienced some problems during the migration from old to new system. She said that these problems were reported and resolved timeously by updates to new versions".

Ningi said that "Universal Knowledge Software offered support to solve some problems depending on the nature of the problem or the issue at hand. She also

indicated that changes to the operability of the system were made as well as moving to the Blue Cloud”. Ningi said that “the new system had improved service delivery. Staff members were now able to generate reports and compiled statistics , they further reported that only remote access was an issue.”

iii. Thabisa

Thabisa was a female between the ages of 40 to 49 years working at UKZN as a Systems Administrator and had vast experience in the library. “Thabisa said all UKZN libraries used SirsiDynix Symphony and was implemented in 2007. The reason for the change was to upgrade from URICA library system to ILMS”. Thabisa said that “they were not consulted during the implementation of the new system. Thabisa said the system was user friendly with lot of advantages and disadvantages, for an example one has access to all library holdings”. Thabisa further cited that “it is one-stop shop and allowed for the issuing and returning of books. Thabisa highlighted that migration of records was done before the system went live, and that they had access to all records for about 7 to 9 days and months later. Thabisa said that the system allowed them to go back and verify the data”.

Thabisa indicated that “moving to the new ILMS had its problems. Some PMB records had clashing barcodes with Westville campus”. They use the prefix A’s and B’s in front of item IDs and at the end of item IDs and PMB used the same thing. During migration these records were rejected by the system but later solved. Thabisa highlighted that “the change to a new system had improved the workflow, as the new system provided many features that URICA library system did not had and the system was more flexible.

4.4 Biographical sketches for Library Management

i. Ntando

Ntando was a female aged between 60 to 65 years of age and had 19 years of experience working for MUT as a Senior Library Director. Ntando indicated that having worked in the library for the past 19 years, the motive for change was motivated by the fact that that all esAL institutions wanted to facilitate into resource sharing between institutions. For this process to unfold smoothly various role players were needed for

the implementation of the system. These processes included the Project Implementation Committee which included all representative of all Heads of the Libraries.

Various vendors made presentations to the esAL steering committee, as well to key personnel from the libraries and SirsiDynix Symphony became their system of choice. This was guided by the needs of their respective institutions as well as that Universal Knowledge Software was going to be the South African support vendor for SirsiDynix Symphony said by Ntando.

Licensing Agreements were entered into at the inception and all institution agreed on the terms of reference. The project manager employed was responsible for drawing policies and licensing agreements customising them to the various need of institutions said by Ntando. Every change came with problems and challenges. As a result, the new system came with challenges such as the customizing of records according to individual institution's stipulations said by Ntando. Other issues pertaining to record clean-up was another challenge as stated by Ntando. Ntando also highlighted that training for the new system was also provided by the vendor.

The system had met libraries expectations in the sense that it allows for continuous access and to generate reports. The system had a test server to enable institutions to introduce new enhancements to the system said by Ntando. It was going to ideal for the system to have cloud services instead of relying on localised ones and to their own IT support teams within the library that would better understand library matters said by Ntando.

ii. Sandile

Sandile was a male aged between 40 to 49 years and had been working at DUT as a Manager for Library and Information Technology for the past six years. The change to the new system was motivated by the research done by the esAL task team that explored options in terms of the library system and decided to upgrade to the new ILMS said by Sandile. The vendor was chosen because of the available packages from the service provide as stated by Sandile.

Sandile said that DUT managed the policies in the system and changes t could only be made via a consultative process with various stakeholders. Training was

conducted by the vendor and all staff members were trained on their specific modules. The change to the new system had been very beneficial because the system met the value of their investment as they were able to offer their library users efficient and effective service, and the vendor offered them support each time they experienced problems with some functionality.

The new system offered staff members the autonomy to make changes to the system and that DUT also had plans to expand the system said Sandile. For further improvement to the system there should be proper communication with all stakeholders.

iii. Thanda

Thanda was a female aged between 40 to 49 years of age and has 11 years experience working as a Manager at the UKZN Library. The change to the new system was because they wanted to improve their services and be on the cutting edge of technology. The change was welcomed by all library staff said Thanda. There were no major challenges pertaining to the change except the teething problems, as well as the staff adaptation to the new system.

Thanda also said that the vendor was responsible for bulk staff training on the new system. The Library Information Technology Department were responsible for refresher training for all library staff members as the need arises. Thanda further said new system was also meeting their expectation as it was a one-stop shop for all queries and gives a broad coverage of their collections. Thanda also said “any system implementation requires the full co-operation of all the role players involved to be successful as well as, as well as buy in from all levels of staff goes a long way to facilitating the change”.

4.5 Biographical sketches of the staff of Universal Knowledge Software

i. Thabile

Thabile was a female of 50 to 59 and working as Customer Executive for Universal Knowledge Software for the past 8 years. She was responsible for customer growth by promoting and implementing Library Management Software packages, Core

System and additional modules, such as Discovery Tool, Digital Archiving, Management Software, and eBook Platform for all their library clients. Thabile was also responsible for rendering after sales support. Thabile was responsible for conducting on-site visits, via phone and email, as well as servicing clients and informing clients of their new products. Thabile indicated that they also informed clients if there were new product developments through sending newsletters, through their Facebook page, as well as during customer visits or doing roadshows.

Thabile highlighted that they provided training related to products or modules purchased as well as implementations of these products. She further said ad hoc refresher training on any module was provided when required.

ii. Thembeka

Thembeka was a female of between 40 to 49 years of age, working for UKS for the past 8 months as a Customer Specialist. Thembeka was mainly responsible for training clients on new software packages as well as new system implementation. Thembeka was responsible for customer support by conducting on site visits to all their local clients, and responsible for assisting clients when they encountered problems. Thembeka was responsible for servicing all KZN clients for support and for troubleshooting problems and did onsite monthly inspection. Thembeka was also responsible for trying out new policies according to institutions specifications and requirements. She tried those new changes on the test server first to see if they worked before running them on the live server. Thembeka also identified needs for training on new products and communicated with various institutions if they were interested, will plan, organise and train librarians on new trends pertaining to modules.

4.6. Pre-Implementation of ILMS

In the Interview Schedule A pertaining to Librarians the researcher wanted to engage with Librarians as to the impact of the system they had used before the current one. The type of modules they were using and lastly, the issues that informed the change to the new system. Out of twelve librarians interviewed, eight librarians indicated that there were additional modules that came with the system such as Reports, Configuration, Offline, and Interlibrary Loans. Other modules were optional depending on the packages chosen by the institutions. The Reports module was mainly used by

Systems Librarians for Administration purposes as well as for generating statistics. Reports were generated upon request

Three librarians working as Circulation Librarians from their respective institutions revealed that they were using SirsiDynix Symphony and the Circulation Module. The three librarians performed their core functions and further revealed that they were happy with the change to the system as the system had changed their work processes.

When asked what motivated the change to the new system, all three libraries were motivated to change to the new system because of shrinking budget, due to the fact that they wanted to share library resources, cut costing measures and be on the cutting edge of technology. One out of three Circulation librarians interviewed said that “the system was cost effective since it allowed for resource sharing and that would place the institution at the cutting edge of technology”. Two out of three librarians interviewed agreed that they were now able to perform tasks that they could not perform before. The new system was easy to use and comes with additional features not in the case with the previous system.

When asked if they were informed about the change and if this change was communicated to all staff members who will be affected by the change. All twelve librarians agreed that they were all informed by the change to the new system.

When asked if they have used any other system before using the SirsiDynix Symphony. Eight out of twelve librarians said they have used URICA library system before migrating to SirsiDynix Symphony. Ayabonga revealed that he had used other Modules that the system came with like the Circulation Module. He had worked in the Circulation Department before but now he was working in Acquisitions Department and using the Acquisition Module”.

When asked what inspired the change to the new system, all twelve librarians revealed that it was a management decision. All twelve librarians were informed about the change and various suppliers came to do demonstrations and decided to use SirsiDynix Symphony. It was the best system for them as the system came with additional features. They were currently happy with the new system as it was able to perform tasks that the previous system could not perform”.

When asked if all other academic institutions were using SirsiDynix Symphony. All twelve agreed that all institutions were using this system. One librarian out of twelve interviewed revealed that at UKZN they only migrated to the ILMS in 2007 and stated that they were not part of the consortium as DUT and MUT.

Mawande, Bongi and Siyabonga worked as Periodicals Librarians at the three respective institutions under investigation. They were all using the Serials Module that came with the new system. One of the three librarian indicated that apart from the Serials Module he was also able to use the Cataloguing Module as he sometimes had to do Catalogue journals as well.

When asked if the new system was web based one librarian out of the three-interviewed said the system was not 100% web based as it did not allow them to delete if you made a mistake.

When asked if training for the new system was provided. All twelve librarians cited that training formed the core to any change in the system and further indicated that without ongoing training they were not going to be able to utilise the new system to its maximum. All twelve librarians further agreed that training was provided by the vendor and part of the package. The more training they received on the new system the easier it made it for them to realise the full benefits of using the system.

When asked about communication and changes to the new system. All twelve librarians were very positive and indicated that they was communication about the changes to the new system. In fact all twelve further said they were involved with the initiated changes. Various vendors came to make demonstrations and the SirsiDynix Symphony became their system of choice as they were happy with the available package.

Siphokazi, Mbali and Senamile were working as Cataloguers and using the Cataloguing Module daily to perform their core function. When asked about whether they were aware of this change to the new system and how they felt about it. All three librarians indicated that they were not working at their current institution during the implementation of the new system. They attested that they heard from their predecessors that all staff was informed about change. The introduction of change

changed all staff members as they were pleased and happy with what the change brought. When asked if they were able to compare this system with any other system.

Siphokazi, Mbali and Senamile said that they could not compare it with any other system because they had never used an ILMS system before as they were using URICA library system. They further said the URICA library system was not web based.

4.6.1 Implementation and Administration of ILMS

When asked about the user friendliness of the system one of the three Circulation Librarians revealed that “the system was user friendly as it enables them to see if the user had used the previous book before. The system was able to track usage of a specific and identify specific book that had been borrowed by a specific user”. She further said that “the new system enabled them to register and modify new users by updating and creating new user records on the system she further highlighted that it allows them to block users and send overdue notifications through sms notifications and e-mails”. One Circulation Librarians added that “the system allowed them to do issues and returns and all agreed that they did not need a lot of training on the system as it was simple and straightforward”. She even taught herself some of the modules.

The researcher also wanted to find out from the Acquisitions Librarian if they felt that there was a need for change to the new system and whether they felt that the system was user friendly. Vusi cited that “the system was simple and easy to operate it was easy to find your way around the system”. Philani said that “the more training he received the more and simpler it was easy to use the Acquisitions Module”.

All three Cataloguers interviewed gave their views about the user friendliness of the system. When asked if the system was user friendly one of the three cataloguers reported that “the system came with features that were easy to correct when they have made mistakes”. Philani further highlighted that “the system could navigate, go back and save and able to delete”. One of the three librarians cited that “you need to learn more on the use the system to see its maximum potential”. She further said that “the system had an RDA facility tool kit which worked well with international standards”. One of the three librarians also highlighted that “the system had drop down boxes with menus that allowed one to click on them. The menu were standard and clear and were able to direct you to relevant information. It also enabled one to train other staff

members on how the system works”. Senamile also agreed with Mbali and Siphokazi as she also shared the same view that the system was user friendly. Senamile raised another point which her colleagues did not mention which was “if you were stuck and not sure what to do you could log a call and ask for assistance from the vendor and they were always available to offer support”.

When asked whether training was provided, Amanda, Aphiwe, Bongzi and Mbali all agreed that training was provided by the vendor. Furthermore indicated that they were all responsible for cascading training to their respective colleagues in various sections”. Vusi stated that “when the system was implemented, staff were informed and they were part of the change. There was continuous communication with various Interest Groups, that were formed representing various modules. Meetings were held with the vendors, at different institutions to discuss the changes and the mechanism were put in place to manage migration of records to the new system”. Amanda, Sindi Philani, and Senamile were asked if the system is able to generate reports and they all agreed that the system could generate reports depending on the type of reports institutions required. Sindi, when asked if she was there when the change to the new system was implemented, Sindi responded by saying that “although she was not there during implementation, but she assumed management followed necessary communication protocol as there was appropriate training for the new system before migration”. Senamile when asked if the system has some additional features, she responded by saying that “SirsiDynix Symphony had features that allowed them to block users with overdue materials, as well as to modify and register new users”.

When asked if there was communication about the change to the new system. Aphiwe reported that there was communication. Interest Groups were formed and their role was to compare the systems. .Aphiwe further indicated that “some staff members were even taken from their respective workstations to view the new system when the vendors came to make demonstrations”. Aphiwe further said that they decided to choose SirsiDynix Symphony as their ILMS. This was based on their needs and the features and specification that the system provided.

When asked about the benefits of using the SirsiDynix Symphony all four librarians from MUT reflected that they found it was easy to navigate the system. Furthermore,

they elaborated that it was easy to correct mistakes as the system allows you to go back, save and delete.

A DUT librarian interviewed shared that for you to realise the full benefit of the system you had to use it to its full capacity. The librarian further stated that “the system had a help feature that directs you to drop down boxes that can be used to browse for assistance on any Module”.

At UKZN a librarian interviewed reported that “the system was cost effective”. The system allowed academic institutions to customise their record as per their institutions requirements The system also had web services to suit various needs of the consortium”. Siyabonga also said “the system had tools to manage journals, manage your funds, your orders as well as your payments”.

4.6.2 Outcomes and Post Implementation and Administration of ILMS

The researcher wanted to discover if there were any problems and challenges related to using the system, and if so identify the mechanism that can be used to solve these problems. The interviewees answered one of the research questions that the study was investigating about the challenges experienced by users of the SirsiDynix Symphony across the academic libraries in KZN.

When asked about the challenges and problems related to the system, Vusi responded that “the system was customised to suit the institutions needs”. Vusi stated that this was evident when MUT Library Management wanted their users borrowing privileges extended from 90 days to 180 days. The policy was adjusted to suit MUT’s needs. Universal Knowledge Software was able to offer its support on changing this policy. The system was customisable with additional features added to suit the institution’s needs by adding of specific categories as requested by the institution. Other minor problems like downtime, slow connectivity, and off- line were dealt with internally before being escalated to suppliers depending on the nature of the problem. Vusi further said that problematic screen shots were sent by e-mail to Universal Knowledge Software Librarian discussing the nature of the problems.

Both Sindi and Amanda were asked about “the challenges they experienced. Sindi responded by saying that most challenges they face they try to resolve them internally

by troubleshooting and informing their Systems Librarians. If those problems were not solved then they were escalated to Universal Knowledge Software. Amanda also supported Sindi that they do their troubleshooting internally especially if it was a minor problem. Siphokazi cited that the problem they encountered regarding sharing the system was lack of bibliographic rights needed to edit records. They cannot just edit the records without consulting the participating library but Universal Knowledge Software offered support if they experienced problems and they also conducted on site visits and inspections to offer their support. Siphokazi further highlighted that some of their records were not migrated when migrating to the new system and that created the problem of them doing original cataloguing of some books. Siphokazi complained about the restrictions on rights to delete records as institutions were sharing resources and further said the system did not allow changing of records without consulting other institutions as limits existed as per institution's licensing agreements and policies.

When asked about the problems they encountered, Mbali said that they encountered duplication of records with some of the records during the system migration and stated that some of the problems could be easily solved internally. Mbali reported that "they experienced problems during downloading of records especially from Acquisitions if the wrong record was downloaded". Mbali further said that "the latest information was not transferred instantly as they would like it to happen but instead they had to wait for a day for the record to be downloaded". Mbali also highlighted that another problem they encountered was from the Serials Module if the periodical staff modifies something. Mbali further reported that that modification did not show exactly the modified bibliographic record. Siphokazi said that "the merging and duplication of records was also problematic due to a lack of consistency and clarity with the capturing of records by librarians which makes it difficult to retrieve some records".

Senamile raised the concern regarding some records that were not migrated when they moved to the new system and were left unmigrated. Senamile said that "another problem encountered was that of merging records, duplicate records they had to delete as some records had missing fields". Senamile further indicated "problems related to a lack of consistency of the catalogue records especially during capturing". Senamile further said that some fields lacked clarity and consistency. Mawande also raised the problem regarding the Serials Module in that it did not allow you to add a new control record as with the Acquisitions Module but further indicated that, but they

had not encountered major problems as they get support from Universal Knowledge Software.

Bongi and Aphiwe answered the question about the problems they encountered. Both agreed that problems would be first attended internally before consulting the supplier. Bongi and Aphiwe reported that problems were passed to the Systems Administrator to be resolved. Some complicated problems were sent to Universal Knowledge Software. Philani, Siyabonga and Senamile cited that the Systems Librarian solved all their problems with the assistance of the Information Technology Department.

When asked if they experienced any problems with the running of reports on the system Vusi, Sindi, Ayabonga, Mawande and Siphokazi indicated that most problems they experienced during the running of reports evolved from the fact that too many steps were required and followed. Siphokazi further commented that “the reports were not as straightforward as they wanted them to be and this resulted in them not generating the desired output as too many steps were followed”. She further said If these steps were not properly followed it would provide the wrong report output. Ayabonga said all four librarians shared the view that certain functions were not activated that means that some functions needed to be conducted manually like your in-house stats and book drop features.

When asked if the system was meeting their expectations Vusi, Ayabonga and Siphokazi both agreed that the system met their expectations with the exception of Mawande. She said that as much as the system met their expectations but needed to be developed further. Amanda, Aphiwe, Bongi and Mbali all agreed that the system was meeting their expectations because it had a help facility and study guides that you could always refer to in case you had a problem or not sure of some applications.

All three agreed that for the system to meet librarians expectations t there was a need for further development with additional new features that would enable the librarians to perform their jobs more efficiently and effectively.

Sindi said that the system met the needs of issuing and returning of library books as well as the registering of library users. Furthermore, stated that the system met her as compared to the previous system. The Periodicals Librarians said the system had a

functionality that they needed for ordering, checking in, funding and payments and had sufficient tools.

4.7 Systems Librarians

Interview Schedule B was for the three Systems Librarians from DUT, MUT and UKZN interviewed to form part of this study. The reason for their selection was that the researcher wanted to have a clear understanding about the technical aspects of the ILMS. The system libraries were experts, their input was going to be beneficial.

4.7.1 Pre- Implementation and Administration of ILMS

Thembi, Ningi and Thabisa who were all Systems Librarians at the institutions; MUT, DUT and UKZN, reported that they had all used URICA library system before the implementation of the current ILMS. The decision to implement SirsiDynix Symphony in academic institutions in KZN was initiated by the esAL Task Team that consisted of all Heads of Libraries, the Project Leader, the System Administration, the Vendor task team as well as the Library Task team. The team that were involved from the initial. Thembi one of three System Librarians indicated that although she was not employed at MUT during implementation of the system. Indicated that the need for change was motivated by the fact that all institutions wanted to upgrade their services by becoming more technologically advanced. They wanted a system that was more interactive. Ningi and Thabisa agreed that there were part of the change and that they were involved throughout the process. Ningi and Thabisa stated that all UKZN academic libraries wanted to upgrade and migrate to the new ILMS so as to provide a service that was more efficient and effective for their library users”.

4.7.2 Implementation and Administration of ILMS

When asked about the benefits of using the ILMS. Thembi responded by saying that “the system made life easy to deal with records from issuing to generating reports and statistics. Furthermore, Thembi said that the system enabled them to communicate with library users and send issues that affected them, like sending reminders informing users due date by programming the system to run reports at a specified time”.

Thabisa said that the system allowed access to library holdings as it enabled one to view across campuses and allows issuing and returning of books.

When asked if “the system had any other additional features. Thembi stated that the system was interactive now because users communicated easily with library staff and the librarians informed users of the due dates of the books telephonically and users were able to even renew books both telephonically and online”. Thembi said that the system also came with the application software and uses Microsoft office and Windows 7. The system provided the following modules:

- i. Circulation
- ii. Cataloguing
- iii. Acquisition
- iv. Serials
- v. Reserve
- vi. Reports
- vii. OPAC

When the researcher asked about “the usefulness of the system, all three SL agreed that the system was very useful. Thembi further said that the system was very useful and was able to do reservation and renewals self-explanatory and screen tips”.

4.7.3 Outcomes and Post Implementation and Administration of ILMS

When asked about how records were migrated from URICA library system to SirsiDynix Symphony and who was responsible for migrating the records, and the problems encountered. Thabisa responded by saying that “migration was done before going live to UKS and they had access to URICA library system 7-9 days after the system was implemented. After months later there was always going back to the system to verify and the data was still available. Thembi cited that she found ghost records that never existed on the library catalogue. Thembi further indicated that there was a process of cleaning records and that process lasted for a very long time. Ningi, Thabisa and Thembi all agreed that the System Administrator and SirsiDynix Symphony were responsible for the migration of records

When asked about how they feel about institutions sharing the catalogue, Thembi said “sharing of the library catalogue had its advantages and disadvantages as some experienced challenges that came from lack of full bibliographic control of the record as you cannot change anything on the catalogue without consultation other participating institution”. Thembi further reported that lack of access within the catalogue meant that before any changes or modification done on any library record all participating institutions had to agree upon such change as it was going to affect the full bibliographic information of the record of other participating institutions. Thembi also raised that the problem of downtime, and slow connectivity that they sometimes experienced but further said that this was emanating from other institutions bandwidth as this was not the sake with all institutions.

When asked about how the problems experienced were solved, Thembi highlighted that “Universal Knowledge Software was aware of the problems they experienced. Thembi further said that some problems were dealt with internally before escalating them especially those involving human error and they tried correcting them”. Some records were wrongly captured on the system. Thembi further indicated that some records were ordered by MUT on the system, but they appear as Zululand records. Thembi reported that some records were wrongly captured and use UNIZULU codes. Ningi reported that in their institution problems were resolved by doing updates to new versions. Thabisa said they dealt with problems directly as they come.

When asked about what type of support was offered by the vendor, Thembi reported that that “the vendor was available to render support by being more visible and onsite visits were conducted to inform clients about new products as well as new trends and developments on the system”. Both Ningi and Thabisa agreed that the support rendered depends on the type of problem they encounter.

When asked about what changes they would like to see on the system, Ningi suggested that “the system must have more interoperability and preferable allow moving to the Blue Cloud”.

When asked about what sort of back-up plan the system had in place should the system be off-line, Thembi reported that “the back-up plan was done by the host institution but also the system could run on the off -line mode”. If the institution was off- line all records were downloaded automatically once the system was back on-line.

Thembi further said that “Universal Knowledge Software was also responsible for system maintenance and that it was their responsibility as Systems Librarians to ensure the smooth running of the system”. Ningi said that a test server was available and located at another site, Steve Biko campus.

When asked about how the reports were run on the system, Ningi, Thabisa and Thembi agreed that “they were all responsible for running reports at their individual institutions depending on the type of reports requested by various Librarians”. Ningi, Thabisa and Thembi further reported that reports were set and scheduled to run on specific dates upon request and they run according to the specifications of the library requirements.

Thabisa also raised the concern regarding the cost of the system. Thabisa reported that “the institutions were charged for running reports and for sending sms bundles. Institutions had to buy their own bundles according to their budgets as SirsiDynix Symphony charged them for everything done on the system”. Ningi reported that “the system allowed staff members to schedule and run reports for all modules at a specific time meaning that they were able to schedule reports and specify the time when they want them to be generated’. Ningi further stated that “the system added value in the sense that it had the ability to use multiple windows by jumping from one Module to another as long as the Librarian had access and rights to those specific Modules and were customisable to suit the institution’s needs”.

When asked if implementing the ILMS had improved service delivery. Ningi, Thabisa and Thembi reported that they were happy with the improvement in service delivery at their institutions. Ningi, Thabisa and Thembi also reported that “the system continued to improve with additional features being added and that had an impact on their performance”. Ningi, Thabisa and Thembi further agreed that that ILMS had more features when compared to the previous system but further commented that not all the features were activated but as the time goes there were hopeful that there was going to be improvement. Thabisa highlighted that “the new system was better as compared with URICA library system as it had improved service delivery and was flexible on generating reports”. Ningi cited that the problem of remote support was an issue on its own.

4.8. Library Management

Three staff members from Library Management at each institution were interviewed. The Senior Director of the MUT Library was interviewed as well as the Library Managers from DUT and UKZN. It was essential for them to be interviewed as they played a major role in deciding which system must be implemented and what informed their choice of system and their reasons for the change.

4.8.1 Pre-Implementation and Administration of ILMS

When asked about the reason for changing to a new system, the three members of Management interviewed gave different responses. Sandile was the DUT library manager, and very positive about the implementation of the ILMS. Sandile said “It was more about resource sharing, and further highlighted that they wanted change as well as to participate in esAL initiatives as all other institutions using SirsiDynix Symphony”. Ntando and Thanda, who are MUT and UKZN library managers respectively were not positive about the system. Sandile further reported that “the new system was implemented in 2005 after much research by the esAL task team”. Sandile reported that recently DUT had explored other options in terms of the library system after deciding to withdraw from the esAL consortium. Sandile further said although the ILMS served them well but planned a move from esAL consortium to a DUT ILMS. Thanda also reported that “there was inadequate support from the vendor and they wanted to move to a Cloud Based System and stand alone, in other words not had to share a library catalogue’.

When asked who the role players were during the implementation of the ILMS, the responses from the three representatives of Library Management were indicated in the following table:

Table 4: Role Players per institution during implementation

Institution	Role players
MUT	<ol style="list-style-type: none"> 1. All heads of libraries
DUT	<ol style="list-style-type: none"> 1. Project Leader 2. Systems Administration 3. Vendor Implementation Team 4. Library Management
UKZN	<ol style="list-style-type: none"> 1. Library Staff 2. IT Staff 3. Vendor

When asked how the vendor was chosen. There were various responses by Library Management. See Table 3 below:

Table 5: Choice of Vendor

Institution	Response
MUT	<ol style="list-style-type: none"> 1. Various vendors made presentations 2. Directors of libraries were responsible for choosing the vendor 3. Library staff were also instrumental in the choice of the best system as they were involved when various vendors made representations and SirsiDynix Symphony became the system of choice
DUT	<ol style="list-style-type: none"> 1. History of product and service 2. Well positioned in the market 3. Innovative solutions 4. Client support 5. UKS Local vendor 6. Turnaround time 7. Integrate easily with current system 8. Vendor the sole supplier of current system

UKZN	1. Vendor the sole supplier of current system.
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When asked about the various packages that were offered by the vendor, the interviewees all came out with different responses but also the reasons for various responses were because different institutions had different needs (Table4)

Table 6: Packages for Institutions

Institution	Packages
MUT	<ol style="list-style-type: none"> 1. Server hardware 2. Library automation software 3. Workstations and peripherals 4. Authority upgrading 5. Data conversions, clean-ups, and data extraction 6. Installation of Z39.50
DUT	<ol style="list-style-type: none"> 1. Workflows 2. Serials 3. Cataloguing 4. Acquisition 5. SirsiDynix Rooms 6. Director's station 7. Electronic Data Interface
UKZN	<ol style="list-style-type: none"> 1. Circulation 2. Cataloguing 3. Acquisition 4. Serials Control 5. Reports

When asked about how the system was administered, all interviewees gave various answers according to their institution's needs and specifications. Ntando highlighted that "all licensing agreements were entered into at inception and their policies were customised to suit their needs". Sandile indicated that "they managed their own

policies and the system were configured in relation to their policies and the institution's specifications'. Thanda said "their policies were checked by their Legal Office'.

When asked how the system was financed and how funding was sponsored, Ntando said "funding was sourced through an organisation known as the Mellon Foundation, and that the Finance Committee as well as the Project Committee were responsible for overseeing the whole financing process". Sandile indicated that "the Library was responsible for sourcing funds whereas at UKZN money was sourced from the Research Office".

4.8.2 Implementation and Administration of ILMS

When asked how data was migrated from the old system to the new system, Ntando responded by saying that "the project manager and the systems manager were responsible for data migration". Both Sandile and Thanda said that it was the responsibility of the Vendor Team as well as the Systems Manager.

When asked about how the problems experienced during the implementation of the new ILMS were resolved, Ntando reported that "the issue of customisation of records according to individual institutions stipulations was very problematic and the process of record clean ups was a daunting task". Sandile mentioned that "no major problems were identified except for general teething problems such as librarians' resistance and adaptations to change". Thanda also shared the same view as Sandile as they both highlighted "general teething problems as well as staff adjustment to the new change as any change came with adjustments resistance and comparisons were challenges experienced".

When asked whether training for the new system was done and responsible for staff training. Sandile, Ntando and Thanda agreed that training was done by the vendor system administrator as well as the various task teams that formed part of Library staff from three participating institutions representing each module. Sandile, Ntando and Thanda further agreed that all twelve Librarians interviewed each represented one module, they were all were responsible for cascading the training to various Librarians in their respective sections.

4.8.3 Outcomes and Post Implementation of ILMS

When asked if the system was meeting its value of investment, Ntando agreed that “the system was adding value in the sense that it was able to generate reports of any kind depending on the institution’s specific need”. Ntando further said that “it had a test server that could be used for trial and error before going to the live server. The system also offered continuous access to all library resources as well as to other participating institutions”.

Both Sandile and Ntando agreed that they could see the value of their investment because Universal Knowledge Software offered continuous support to any problems and challenges they encountered. The system was also very stable and was offering system updates automatically at only a click. Thanda said that “the system was a one-stop shop because it offered broader coverage of all their branches and that was a great help to them and to their library users”.

When asked if they would recommend any change in the current system, Sandile said that “they were currently happy with moving to the system because the change had put them on the cutting edge of technology”. Ntando reported that “as much as any change had its teething problem embarking on this change was one of the best ideas they had done over the years except for challenges that came with any change”. Thanda also reported that “they were all happy with the system” and he could not comment any further.

When asked what strategies can be employed to improve the implementation and administration of ILMS, various responses were gathered from the interviewees. Ntando suggested that “the turnaround time in terms of addressing queries should be addressed.” Sandile reported that “there must be communication between all the stakeholders involved so that they were informed about the process and the step”. Sandile further reported that “team members needed to be specialists in their functional areas”. He highlighted the need that the project plan must be consultative. Sandile further reported that library staff members need to be on board. Sandile reported that the IT Department of DUT and the Universal Knowledge Software administrators to be part of the plan. Sandile also reported that ILMS must be marketed and Post Implementation to be done to see if the project was on track.

Thanda responded by saying that “they were concerned with collaboration with librarians that are actually using the system”.

When asked to comment about the implementation and administration of the ILMS, Sandile, Ntando and Thanda managers interviewed came out with different views in their responses. Ntando reported that “as an institution they were more interested in cloud-based services, and the problems of downtime, poor bandwidth, slow connectivity, offline and lack of IT support were also identified”. Sandile indicated “they were also interested in Blue Cloud Computing Services but also raised concerns that the system was not web based”. Sandile said that “they needed to make changes first on the systems automation functionality for them to be able to operate using cloud-based services”. Thanda suggested that “if there was more collaboration they may be able to improve their service delivery”.

4.9. Universal Knowledge Software

The researcher conducted interviews with two representatives from Universal Knowledge Software, the Customer Executives and Customer Specialists. Interview schedules with similar questions were prepared by the interviewee. These interviewees were done simultaneously as they felt there was no need to interview each person individually. Universal Knowledge Software was the sole distributor of Unicorn in Africa south of the Sahara for the SirsiDynix Symphony Corporation since its introduction in 2005. Their input was going to be essential for this study but unfortunately the interviewees could not respond to some questions because they felt that some of them required responses which involved confidential clauses which would impact on their core business.

4.9.1 Pre- Implementation and Administration of ILMS by Universal Knowledge Software

Interview Schedule D consisted of questions for the staff of Universal Knowledge Software.

When asked how many clients they have in KZN and how these clients are chosen. Both Thembeke and Thabile responded by saying “they have four clients in KZN”.

When asked how these clients are serviced, Thembeke and Thabile both said that “their software does not have any limits on the size or type of library hence and had no restrictions on growing their customer base”.

When asked what type of products Universal Knowledge Software was offering to clients Thembeke and Thabile mentioned the following:

- i. Library Management Software
- ii. Core system and additional/optional modules
- iii. Search and Discovery Tool
- iv. Digital Archiving
- v. Management Software
- vi. eBook Platform
- vii. Native Facebook Application
- viii. Analytic Software
- ix. RFID technology.

4.9.2 Implementation and Administration of ILMS

When asked how clients and services were supported should they encounter problems. Both respondents interviewed responded by saying that the clients are serviced via a remote connection to their own system. Both Thembeke and Thabile reported that they were also supported through telephone calls and emails depending on the nature of the problem. Thembeke and Thabile further reported that in some cases they do on-site support visits where they will schedule appointments with the Systems Librarians and attend to their client’s needs.

When asked how they deal with complaints and how these are addressed, unfortunately they could not comment on these interview questions. Both interviewees felt that this is confidential information which, according to company policies, they cannot divulge.

4.9.3 Outcomes and post implementation and administration of ILMS

When asked about the type of awareness campaigns they render should there be new product developments in the market. Thembeke and Thabile responded by saying the following:

- i. Newsletters are circulated
- ii. Social Media such as posting on their Facebook page during customer visits and roadshows.

When asked about staff training and what type of training is offered to clients. Thembeke and Thabile responded by saying that training was offered depending on the institutions needs and choice of packages each client had chosen, but they do offer the following as their standard.

- i. Software training for products/modules purchased and the implementation of these products/modules.
- ii. Ad hoc refresher training on any product/module as required.

When asked if they have any general comments or suggestions to share, unfortunately both the interviewees said that they had nothing to add.

4.10 Findings of ILMS

What follows are the findings considered by the researcher to be important.

4.10. 1 Implementation and Administration of ILMS

Looking at the findings of the present study this study revealed that for a successful implementation and administration of ILMS requires a total commitment from all stakeholders involved and that they must be involved from the initial planning process phase until the system is implemented. The findings indicated that Library Management must play an active role and make decisions regarding the approach to be adopted for implementation in the choice of the system as well as the librarians

who must be involved because they are the ones that will be using the system daily to perform their duties.

In a study done by Foster (2007) in the United Kingdom it was found that implementing ILMS was driven by the desire to improve access and to meet growing user expectations. The findings in this study also revealed that all staff members were also interested in the new changes that the system was bringing and were happy with the value that the new system was adding as it helped them improve their service delivery and as librarians are now able to perform more efficiently and effectively

The findings of the present study revealed that communication did take place between all stakeholders concerned before the system was implemented. The researcher discovered that without proper communication from all stakeholders the implementation of ILMS was not going to be successful as staff members were not going to welcome the change positively thus resulting in resistance to change. The study further revealed that for any project to be implemented successfully, policies, licensing agreements and formal agreements must be in place and properly concluded between the vendor and library management to avoid shortcomings and to enable both parties to be aware of what are they getting themselves into.

Based on the findings of the present study all licensing agreements were entered into at the inception of the contract and policies were customised to meet each institution's needs. These findings further highlighted that it was essential that the policies must be clear and be understood by all parties concerned. This was because policies contained crucial information pertaining to planning for implementation and administration, timeframes, communication trainings, configurations and support. The agreement should be thorough and understandable to all involved. It should also be modified to meet the needs of each institution.

In a study by Fu and Fitzgerald (2013) it was found that implementing an ILMS was going to reduce costs as most institutions were faced with budget cuts. The findings of the present study indicated that implementing an ILMS enabled institutions to participate in consortia for co-operative resource sharing, so purchasing an ILMS reduced the shrinking budget that institutions faced improved service delivery and provided co-operative collection development. The present study further revealed that an ILMS has enabled institutions to share their library holdings although institutions

have limited rights to make changes in the records any changes done must be done through consultation and all participating institution must agree before such a change is done on the record. Implementing an ILMS has enabled the library to perform various functions such as selection or ordering, which is done on the Acquisitions module. Based on this module the study revealed the library was also able to determine if other consortium members have already selected, ordered, and catalogued the title. The present study also revealed that the ILMS requires more collaboration and co-operation between consortium members.

In a study done by Sajjard and Reham (2010) in Kuwait it was discovered that implementing an ILMS will enable academic institutions to customise their systems according to their individual institutions. In the present study findings revealed that institutions were able to customise modules to meet their systems needs and specifications. This was done by changing certain policies within the system and generating reports customisable to suit institutions needs and choices. These reports were used for decision making so as to improve quality and deliver efficient service to library users.

A study done by Foster (2007) in the United Kingdom the results revealed that implementing an ILMS have presented exciting opportunities for both staff and students. It has posed many challenges for those involved in the procurement and implementation of the new system. According to Foster (2007) a challenge was encountered in integrating the management of a wide variety of material, while providing access to the entire collection. The findings of the present study raised similar problems as some librarians indicated that in some instances it was discovered some duplication of records that resulted in librarians deleting some of those records.

In a study conducted by Mutula (2004) it was found that as library automation was improving there were several challenges that needed to be addressed like the issues of the digital divide and the maintenance of existing software which needed to be addressed and the necessity for proper training and communication for the success of systems implementation. The findings of the present study revealed that there were systems in place to ensure proper maintenance of the systems software. Based on the findings of the present study it has been indicated that the vendor was available to offer technical systems support to various institutions when problems were

encountered. This was done by sending screen shots of problems to the vendor through email. In some institutions the library's Systems Librarians were responsible for troubleshooting minor system faults internally before referring them to the vendor.

As stated by Kurshid and Kadry (2006) the implementation of an ILMS requires the direction of an individual to keep the project on track as well as to ensure that the library and the vendor adhere to contractual and procedural deadlines. Library staff members should possess specialized information to operate the system meaning that staff should be familiar with the computer environment.

In the present study it had been revealed that staff members were trained on the use of the system and all training was properly structured by the vendor per institution and eventually all training was cascaded to all staff members. Ultimately the researcher in this study revealed that the ILMS was well implemented in all academic institutions. The users of the systems which were largely library staff welcomed the change and were generally happy with how the new system had helped in improving their service quality and as well as they were able to provide more effective and efficient service for their library

The research findings of the present study further revealed that the esAL Task Team which consisted of all heads of Libraries, the Project Leader, System Administration, the Vendor task team as well as the Library Task team were the role players in the implementation and administration of the new ILMS and they were involved in deciding which vendor was suitable for the three participating library institutions which were DUT, MUT and UniZul. The choice of the ILMS was determined by various institutions needs such as history of the product and services, packages offered, client support, innovative solutions and how well positioned the vendor was in the market. All those issues informed the decision to choose SirsiDynix Symphony as the system of choice. According to the literature consulted the study conducted by Foster (2007) concluded that a decision to procure an ILMS was driven by the need to improve access. Foster (2007) discovered that that implementing an ILMS has offered opportunities for both staff and users and posed many challenges for those involved in the procurement and the implementation of the new system.

In a study done by Omeluzor and Oyovwe-Tinuoye (2016) on assessing the adoption and use of ILS in academic library operations in Edo and Delta states in Nigeria, it was

shown that there was a general non-use of ILS in academic libraries in Delta state. These findings further showed that the ILS that was used in academic libraries in Edo State was effective. It was revealed that the ILS was affected for accessing books and other library materials, the retrieval of materials, bibliographic searches and provision of links to external databases. Findings of the done by Omeluzor and Oyovwe-Tinuoye (2016) further revealed that among the library software that was used in academic libraries in this study, only Koha ILS has the capacity to link to external databases. The use of ILS is critical and the non-use of ILS in most academic libraries is a setback to the delivery of quality library services to users.

Based on the study done by Omeluzor and Oyovwe-Tinuoye (2016) all academic libraries are using ILS for their daily operations although currently some have migrated to Cloud Based Computing because of advancement in technology as they also want to be on the cutting edge of technology and to align their library resources to accommodate these market changes. In a study done by Xiaohua (2014) at the Sacred Heart University in the USA it was found that the rapid advancement of web technologies and the growth of electronic resources and digital contents have increasingly exposed the weakness of traditional ILSs. Xiaohua (2014) emphasized that this is due to the lack of flexibility, interoperability, and efficiency which implies that the ILS barely meet the needs of both internal and external library users. Content Management Systems (CMS) such as Drupal and Open Source ILS have gotten much attention due to their technical and economic advantages, along with cloud computing which has allowed libraries to focus on bigger pictures.

This technological growth has forced major ILS vendors to turn the wheel and develop the next generation ILS to be the cutting edge of technology and align their resources to meet the needs of these fast growing trends. Based on the study conducted by Xiaohua (2014) it was concluded that the changes in the Library and Information Services market are forcing libraries to provide their users with efficient and unified access to the Web content, including electronic resources licensed by the libraries such as databases and e-journals and the need to handle electronic resources created and held by the libraries themselves (Hakala, 2004). When the present study was almost concluded the researcher discovered that some institutions under investigation have already migrated to these new trends. DUT and UKZN had since migrated to

Cloud Based System. UKZN are currently using Worldshare Library System which is a Cloud Based System and DUT migrated to Blue Clouds by SirsiDynix Symphony but not all Modules are using Blue Clouds in DUT.

4.10.1 Problems experienced by Library Staff when working with ILMS

As stated in Chapter One, the SirsiDynix Symphony ILMS was implemented in 2005 by some academic libraries in KwaZulu-Natal such as DUT, MUT and University of Zululand. The main reason behind the implementation of an ILMS was to improve the efficiency of internal operations through improving internal workflow and resource sharing of the library catalogue, as well as to cut increasing library costs and shrinking library budgets through the provision of an ILMS. In a study by the OCLC (2003) results of this study revealed that that librarians view themselves as information specialists not just as custodians for books and requires an ILMS that would enable the provision of real time information.

As discussed in Chapter Two, in a study done by Hoskins and Stilwell (2012) it was found that libraries have changed to an ILMS to improve their collaborations for considerable areas and for the broader aim of nationwide development. Based on present study it is evident from the findings generated through interviews conducted that the system has changed and improved the librarians' core functions, because now they are able to share their catalogue resources with other institutions through the library's On-Line Public Access Catalogue (OPAC) and they are able to share their bibliographic records with other institutions in the consortium.

The findings of the present study gathered that problems were experienced during the implementation and administration of the new ILMS. "All 12 Library staff interviewed in this study revealed that the sharing of the library catalogue has its advantages and disadvantages, such as lack of full bibliographic access within the catalogue meaning that no changes can be done on any record without consulting the other participating institutions, and that all institutions should agree before the changes are implemented". Some institutions had problems of clashing of barcodes between campuses during the migration of records. The interviews of the present study further revealed that the implementation of a new ILMS resulted in the problem of duplication of records as some records were not captured correctly on the system. Another

problem identified was the lack of rights to delete and edit records, since librarians had to consult other participating institutions for any change made as it will affect the policies. Any change in system involved policies and must be done in consultation with the other institutions as well as the vendor. The present study further revealed that as much as problems were encountered with records there was some flexibility within the policy in the sense that the systems policies are customisable to meet the needs of each institution and that it can be made in consultation with the vendor.

The problem of migration of records was also mentioned. Some institutions felt that not all records were migrated, and some fields lacked clarity, and lacked consistence. Some librarians interviewed felt that good quality records were deleted and some records were not transferred automatically which resulted in untitled orders and a great deal of record clean-up was needed post implementation of the system. The interviews further revealed that centralization of the system was also problematic because of different operation procedures and different policies of academic institutions as each institution caters for various needs. Another technical problem identified was that the serials module did not allow for the adding of a new control record as it is the case in the acquisitions module.

Some librarians interviewed complained that merging of records on the system was too complicated and required technical expertise and a lot of skills to operate which affected the quality of output. The present study further revealed that running reports was too cumbersome as most librarians felt that the process was not very straightforward, difficult to understand, not as easy as it should be, as too many steps were required, and that some features were not activated, some were still manually done like your in-house stats and book drop.

The findings of the present study from the interviewees conducted revealed that as much as there were problems, mechanisms were put in place for channelling the problems to relevant people. Problems were reported to the Systems Librarians and they were first resolved internally before the vendors were consulted. Depending on the nature of the problem they were able to troubleshoot minor problems and deal with them internally. The results of the interviews conducted with librarians established that the system also came with help features which enabled librarians to consult this feature whenever they were stuck or not sure of some operations. The study showed

that training manuals for each Module with guidelines and step-by-step procedures on how to use each module were provided to all staff members.

The present study found that as much as they experienced teething problems the system performed satisfactorily, and that it was user friendly, a one-stop-shop, and has a navigation tool which was self-explanatory. The present study found that library staff were happy to learn new things, new features and new challenges, and some librarians further agreed that they were indeed pleased with the new system and glad that they were moving abreast and were at the cutting edge of technology.

In a study done by Hoskins and Stillwell (2012) it was discovered that lack of adequate bandwidth, and infrastructure were experienced. The interviews conducted in the present study further revealed that problems of poor bandwidth and downtime were indeed experienced and problematic, as it resulted in the system being off-line and some of the records not being properly captured but the system had back up in place and in this case staff were encouraged to use the Off-line Mode to assist users.

4.10.2 Problems experienced by Library Management

Based on the interviews with the Library Management it was found that there was a problem about the customisation of records according to the individual's institution stipulation. Another problem identified was that of records clean ups, adaptation to change and the normal teething problems which were familiar whenever a new concept or a new project is introduced. As stated by Allan (2004) project implementation was about identifying problems and developing strategies to correct them.

The present study established that there was awareness of project planning, but managers felt that the project plan was not as consultative as it did not require all staff members to be on board to enable the full success of the ILMS. Management further revealed that in future all stakeholders must be involved at the initial planning phase and that all stakeholders who will be affected by change must be represented.

Both interviews and the following content analysis established that effective communication played a vital role for the efficient implementation and administration of the ILMS. The present study discovered that key personnel were informed about

the ILMS and they were involved from the initial stage to the implementation phase. The study further revealed that staff needs to know of all developments from sources that have jurisdiction to divulge them. Interviewees felt that there was an also a problem about the turnaround time in resolving queries and they felt that if these can be expedited in future it would enable better service delivery.

4.10.3 Mechanisms put in place by Universal Knowledge Software with regard to problem solving

The present study revealed that Universal Knowledge Software was available to offer support and to inform clients when new products and services were introduced. In cases pertaining to assisting clients when encountering problems and how these problems were resolved the interviews revealed that Universal Knowledge Software could not divulge some information, as they felt it was confidential information and it will endanger their organisations as they had confidential clauses that were binding them. Interviews conducted showed that Universal Knowledge Software is supportive when institutions encounter problems, and these can be done through lodging calls and sending emails with screenshots displaying the nature of the problem. The above statement was also backed up by library staff as well. Universal Knowledge Software indicated that the Systems Administrator was responsible for solving problems internally, but some problems were escalated to Universal Knowledge Software. The interviews undertaken further established that Universal Knowledge Software does offer on-site visits to their clients and on - going training is provided to clients on various modules at an additional cost.

4.10.4 Strategies offered to improve implementation of ILMS

In the interviews conducted by the researcher various recommendations were suggested by all interviewees to improve the implementation and administration of the ILMS. These are discussed below:

- i. The present study revealed that as much as adequate support was rendered by the vendor when problems were encountered, institutions would be in a better position to render effective and efficient service if the turnaround time to attending problems was done timeously.

- ii. Communication played a vital role for any institution to achieve its goals. It was essential that communication should flow from top to bottom and continuously. Feedback must be relayed to all staff concerned to ensure that all staff members were on the same page and quite aware of all latest developments. Those that were entrusted with such responsibility must be able to deliver messages timeously.
- iii. The present study revealed that a team member needed to be a specialist in their own functional area. The staff members were the solution for the successful implementation of the ILMS so their buy-in was essential.
- iv. The staff should be trained by the vendor on the usage of the system and training done on-going especially if there were new products being developed and new features being added.
- v. Staff members needed to be knowledgeable and have the technological know-how on to utilise the system to its maximum.
- vi. The ILMS to be well marketed and this must be done by all role players involved so that all staff members are familiar with the system are aware of all the benefits that the system came with. This would help them embrace the change and they would feel that they had contributed to the ILMS implementation.
- vii. Post implementation and backup would help to identify problems experienced and the challenges of sharing resources. The present study found that if post implementation was done it was going to assist other institutions who wanted to undergo a similar change because they would know what to avoid and the lessons learned from the implementation of an ILMS. There must also be a back-up plan if problems arise with solutions detailing how to go about solving the problems so that the system would add value to its users.
- viii. As supported by Seeman (2003) collaboration with a well implemented system will benefit the institutions as they will be able to share costs.
- ix. Cloud Based Services were suggested. The interviewees in this study revealed that moving to Blue Cloud services would benefit the next generation of library services in the sense that it was going to create a platform that allowed libraries to do more for less, less hardware, less maintenance, and less cost as libraries faced challenges of shrinking budgets.

4.11 Chapter Summary

In this chapter the research results and discussion of results are presented together from the interviews conducted. This chapter analysed and presented the findings and the themes emerging from the interviews conducted. The method used to analyse the qualitative data was also indicated and the results were largely presented verbatim. The findings indicated that implementing an ILMS was successful as it improved the work performance of librarians but revealed problems regarding the sharing of a library catalogue between academic institutions. It was concluded that as much as the vendor offers technical support in cases of troubleshooting, the lack of full bibliographic rights to records, the inconsistency of records capturing, and cleaning up of records had some detrimental effects as some institutions felt that this inconsistency in reading records does not reflect well on the library records and holdings.

A limitation of the study was the fact that UniZul could not be one of the academic libraries included in the study. This was because the UniZul Library Director failed to grant permission for the research to be undertaken.

Chapter Five

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the conclusions and recommendations concerning the study. The recommendations were made based on the literature review, research methodology, data analysis and the interpretation of results. The main objective of the study was to present the implementation and administration of an ILMS in academic libraries in KwaZulu-Natal. This study presented lessons learned and benefits of using an ILMS, and further revealed experiences and challenges of using this ILMS and of sharing a library catalogue between academic libraries. These challenges will assist other institutions who want to engage in similar activities. The aim was to try and address the issues and challenges encountered.

The key research questions of the study were:

- i. What difficulties and problems were experienced by users of the Unicorn (now SirsiDynix Symphony) library management system?
- ii. What are the similarities and differences experienced by users of the Unicorn (now SirsiDynix Symphony) System across academic libraries in KZN?
- iii. To what extent is the vendor of the library management system aware of the challenges?
- iv. What types of solutions can the vendor suggest to solve these problems?
- v. What strategies can be used to improve the implementation and administration of an integrated library management system in KZN academic libraries?

5.2 Summary of the Study

- This study highlighted that there was a need to migrate to the ILMS to enable institutions to share resources amongst each other especially with the shrinking budgets which institutions are facing.
- All library staff interviewed indicated that they had experienced the challenges of using the ILMS and this resulted in some institutions pulling out of the consortium citing various reasons, such as lack of bibliographic rights to change records, costs of the system, and the system being too complicated, especially with the running of reports as too many steps were required.
- Problems were experienced during data conversion of library records. For example some of the records were lost during data conversion and some were added incorrectly with some fields missing which created problems for Cataloguers.
- The Librarians also complained about the lack of consistency when records were captured. The present study further revealed that the Cataloguers also experienced problems with records duplication and clashing of records and some records were found to be deleted. One Library Manager, out of the three-interviewed, concluded that they experienced a lot of record cleanup after the system was implemented.
- The Systems Librarians indicated that there were problems with regard to sharing the library catalogue, especially problems encountered during migration of records, citing inconsistencies, clashing barcodes, clashing of orders, server problem, and slow connectivity due to downtime and slow internet access, as well as problem of remote access
- Library Management raised issues pertaining to some staff having problems of adapting to change. Teething problems were encountered such as staff resistance to the change, so it was essential that all staff involved must have a buy-in to the new system and all information pertaining to the new system must be well communicated to all parties involved, training and ongoing training must be provided, challenges pertaining to the customization of records according to

institutions' stipulation was also highlighted, and lastly a lot of record cleanup was identified after migration.

5.3 Conclusion

This study concluded that there was a lack of full bibliographic rights and access, given to Librarians. This lack of access resulted in librarians consulting each other before any amendments were made on the records and this was another concern that was raised during the interviews. This study concluded that the inconsistency during records capturing resulted in some institutions feeling that this makes the catalogue look messy and does not reflect well on their institution's library holdings especially that their cataloguing standards were being compromised.

This study also concluded the issue of centralization was problematic as institutions have various needs and policies. The present study concluded that the Systems Librarians should have proper technical expertise for troubleshooting and should be trained continuously as technology evolves all the time. This will help minimize additional costs associated with further training so that libraries don't have to rely on the vendor for minor technical issues. The vendor is always available to provide solutions and aims to be visible through conducting on site visits, informing staff of new upgrades and training on new trends and developments. They were always there as a backup when problems were experienced. They also supported the libraries by sending through transaction statistics and month end procedures to help determine if the system was meeting expectations.

5.3.1 Final conclusions of the researcher

The researcher concluded that before any implementation of a new system is done library management needs to consider factors such as: is there really a need for change, if there is a need for change, mechanisms to be put in place for staff adaptation to change, teething problems with regard to the new systems, issue of costs, and if changing to the new system added any value. From the interviews conducted with the Library Management pertaining to the reason for change to this ILMS the researcher was able to gather that this change was driven by the fact institutions wanted collaboration and partnership as a means to achieve a range of

social educational, academic and economic goals, co-funding opportunities, the shared use of limited resources, the hindrance of needless duplication, and the enhancement of the speed and provision of quality service.

This study showed that proper planning was done through collaboration and selection of various working groups comprising of section heads and Library staff. Interviews conducted showed that Systems Librarians with the assistance of the vendor staff were responsible for looking at various system specifications for each module as well software and hardware enhancements, and configurations. The vendor had to ensure that data conversion and migration of library records to the new system was done successfully.

5.4 Recommendations

Based on the evidence from the interviews it is recommended that library management must play an active role regarding improving the implementation and administration of an ILMS. They must ensure that all staff members are on board with the new system, and that they embrace change and they must be involved throughout the planning process. There must also be adequate resources available to solve problems related to ICT infrastructure, downtime, bandwidth and turnaround time must be improved to ensure efficient service delivery. To ensure that the implementation of the ILMS has been achieved the following strategies must be employed:

5.4.1 Training

Based on the on the interviews conducted in this study established that staff must be trained on the use of the new system, as well as on the new features and functions that the system comes with and that training must be an on-going process. Training manuals that came with each Module must be provided and well understood by all staff members. All staff members must familiarise themselves with the training manuals and must be able to use it as referrals whenever they encounter problems. The training manuals must include demonstrations, step by step guidelines guiding users on how to download certain applications. Vendors must organise continuous training sessions with institutions so that users are informed about new trends

upgrades and product developments. Webinars to improve skills and staff efficiency should also be used.

5.4.2 Support

The vendors must ensure that the ILMS has online help functionalities as well as help-desk support to ensure that users of the system can get sufficient assistance to troubleshoot and handle problems. For example the software vendors can collect and share solutions to the frequently asked questions from all users of the system.

5.4.3 Simplicity

The ILMS must provide prompts, browsing menus and icons to make it easier for users to learn more about the software while they are using it. Users tend to prefer software that can anticipate and respond quickly to their needs.

5.4.4 Usability

The System Librarians in their respective institutions must conduct regular surveys to see if the system is still meeting their expectations and share feedback about what features of the system users find easy or difficult to use. Users prefer a system that changes and improves the ways in which they conduct their tasks.

5.4.5 Integration

The vendor together with the Systems Librarians must ensure that the system allows for smooth configuration into the computer network of the academic institution to facilitate data sharing, protection and exchange. They also need to ensure integration of the software platform with growing needs, funding constraints and user demands of the academic library. The ILMS must provide seamless solutions to help the academic library achieve its goals.

5.5 Suggestions for further research

The researcher believed that there was a need for other researchers to explore ILMS related studies as some institutions have already pulled out of the consortium. Some institutions, like UKZN, are already using a new system called World Share which is

also an ILMS. DUT has recently moved to the Cloud-based system. There is a lack of research in the market with regards to the Cloud-based system. It will be interesting if this avenue can be explored further so as to establish the benefits of moving to the Clouds.

It will be important to explore the experiences of other institutions such as University of South Africa (UNISA) as they are also using SirsiDynix Symphony for their daily operations. This will determine if this ILMS is successful and to find out if they are also experiencing similar problems to other institutions. All municipal Libraries in KwaZulu-Natal are also using SirsiDynix System It would be interesting if these libraries could also be investigated, especially since no study has been done investigating public libraries and how the ILMS has benefitted them. It will be interesting to understand what type of challenges and problems they are encountering, and to discover if the implementation of an ILMS added any value to their libraries.

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7. Appendices

Appendix A: Letter of Consent

Durban University of Technology

Department of Library and Information Services

Greyville

Durban

4001

24 November 2014

Dear Respondent

I am a Masters student in the Information studies programme, School of Social Science College of Humanities at the University of KwaZulu Natal PMB Campus and I am investigating the Implementation and Administration of an Integrated Library Management System in Academic Libraries in KZN(ILMS).

Your assistance is kindly requested in the interview to ascertain relevant information for this research topic. I would take approximately 15 minutes of your time. It would be highly appreciated if you would assist any vital information which you think would be useful to this study. Be assured that your confidentiality will be respected.

I will contact you telephonically to arrange a time that is suitable for you in order for the interview to be conducted.

Thank you for your co-operation

Yours sincerely

H. Radebe

Appendix B: Letter of Consent

University of KwaZulu Natal

238 Mazisi Kunene Road

Glenwood

Durban

4041

24 November 2014

Dear Respondent

I am a Masters student in the Information studies programme, School of Social Science College of Humanities at the University of KwaZulu Natal PMB Campus and I am investigating the Implementation and Administration of an Integrated Library Management System in Academic Libraries in KZN(ILMS).

Your assistance is kindly requested in the interview to ascertain relevant information for this research topic. I would take approximately 15 minutes of your time. It would be highly appreciated if you would assist any vital information which you think would be useful to this study. Be assured that your confidentiality will be respected.

I will contact you telephonically to arrange a time that is suitable for you in order for the interview to be conducted.

Thank you for your co-operation

Yours sincerely

H.Radebe

Appendix C: Letter to the Library Manager

20 Morewood Drive

Amanzimtoti

4126

22 November 2014

Ms S. Neerpath

Durban University of Technology

41/43 ML Sultan Road

Greyville

Durban

4001

Dear Ms Neerpath

RE: INTERVIEW RELATING TO THESIS

I am a Masters student in the Information studies programme, School of Social Science College of Humanities at the University of KwaZulu Natal PMB Campus and I am investigating the Implementation and Administration of an Integrated Library Management System in Academic Libraries in KZN(ILMS).

I would like to be granted permission within your institution to conduct Interviews with your Librarians who are using the ILMS as part of their daily activities. The interviews would not take approximately 15 minutes per Librarian. The Interview Scheduled with be e-mailed prior to the Librarians so that they familiarize themselves with the

questions and they are encourage to participate freely. Your assistance in this regard will highly be appreciated. Be assured that their confidentiality will be respected. I will contact you telephonically to arrange suitable times with the Librarians for the interview to be conducted.

Thank you for your co-operation

Yours sincerely

H. Radebe

Appendix D: Letter to the Library Director

20 Morewood Drive

Amanzimtoti

4126

22 November 2014

Ms J Myeza

238 Mazisi Kunene Road

Glenwood

Durban

4041

Dear Ms Myeza

RE: INTERVIEW RELATING TO THESIS

I am a Masters student in the Information studies programme, School of Social Science College of Humanities at the University of KwaZulu Natal PMB Campus and I am investigating the Implementation and Administration of an Integrated Library Management System in Academic Libraries in KZN(ILMS).

I would like to be granted permission within your institution to conduct Interviews with your Librarians who are using the ILMS as part of their daily activities. The interviews would not take approximately 15 minutes per Librarian. The Interview Scheduled with be e-mailed prior to the Librarians so that they familiarize themselves with the questions and they are encourage to participate freely. Your assistance in this regard will highly be appreciated. Be assured that their confidentiality will be respected. I will

contact you telephonically to arrange suitable times with the Librarians for the interview to be conducted.

Thank you for your co-operation

Yours sincerely

H.Radebe

Appendix E: Permission to conduct study MUT

Dear Mrs. H. Radebe,

It is my pleasure to inform you that your project was registered as follows:

Project Registration Number: Admin/04/2014

Project Title: Implementation and administration of an
Integrated Management System (ILMS) in academic libraries in Kwazulu-Natal

Project Leader: Mrs. H. Radebe

Dr. Anette Mienie

Director: Research

Mangosuthu University of Technology

Tel: 031 9077354 / 7450

Fax: 031 9077451

Appendix F: Interview Schedule for Librarians

1. How long have you been employed by the University?.....
2. What library qualification do you possess?.....
3. What is the designation of your post?.....
4. What Integrated Library Management System are you currently using?.....
Sirsi- Dynix.....
Millennium.....
Innovative.....
5. Which module are you currently using?
Cataloguing
Circulation
Acquisition
Serial Control
Systems
6. Which library systems did you used before this one?.....
7. What was the reason for change?
Upgrade.....
Migration.....
Other Specify
8. Was there any communication concerning migrating to the Integrated Library Management System?.....
9. What are the benefits of using the ILMS?.....
.....
10. Is the system user friendly?.....

11. Have you experienced any challenges of using
ILMS?.....
12. How are the challenges addresses?.....
Please explain.....
13. Has the new system improve work procedures?
If Yes how.....

If No how.....
14. What is the functional capability of the
system?.....
15. Is the system meeting user's
expectation?.....
Yes.....

No.....
16. How were records migrated?.....
17. How was testing done?.....

Appendix G: Interview Schedule: Systems Librarians

1. How long have you been employed by the University?

2. What is the designation of your post?

3. Which library system did you use before Unicorn?

4. Is this the system used in every library?

5. When was the system implemented?

6. Who decided on the choice of the system?

7. Were you consulted?

Yes _____

No _____

8. What was the reason for the change?

Upgrade

Migration

Other specify

9. What benefits does the system offer?

10. Are there any other additional features that the system has?
11. Are all staff members using the system and what do they use it for?

Staff

—.

12. What application software does the library has?
 - Microsoft Office
 - Windows XP
 - Word Pad
13. Is your library using an?
 - ILMS
 - Standalone
 - Both integrated and Stand alone
14. Which modules does the system have?
 - Circulation
 - Cataloguing
 - Acquisition
 - Serials
 - Academic Reserves
 - OPAC
13. Can you rate the usefulness of using this system?
 - Not useful
 - Slightly useful
 - Useful
 - Very useful
14. How were the records migrated from URICA to Workflows?
15. Who was responsible for the migrating of records?
16. Were there problems experienced with the migration of records?

If yes, please state what the problems were

No

17. If yes, please state what the problems were?
18. Was the vendor aware of any problems experienced?
19. How were problems solved by the vendor?
20. What type of support is offered by the vendor?
21. What changes do you feel must be made on the current system?
22. What back up is in place should the system be off-line?
23. How are the records loaded if the system is off-line?
24. Who is responsible for systems maintenance?
25. Where is the server housed?
26. How are reports and statistics generated on the system?
27. Has the service delivery improved after the system was implemented?

Appendix H: Interview schedule D: Library Management

1. How long have you been working for the University?.....
2. What position do you hold?.....
3. How long have you occupied this position?.....
4. On the 15th of November 2005 three large institutions in KZN migrated from the Urica system to the International Unicorn System owned by Sirsi-Dynix. Is this correct?.....
5. What motivated the change?.....
6. How was the system chosen?.....
7. Who were the role players?
.....
8. What policies are in place for maintaining the ILMS?
9. How was the ILMS funded?.....
10. Was there any consultations employed?.....
11. Were there any new staff employed to assist with the implementation of the system?.....
If yes why?.....
If No why?.....
12. How was the testing done?.....
13. How were records migrated?.....
14. Were there any challenges identified with migration of records?
Yes.....

No.....

15. How were the problems resolved?.....

16. How is the communication handled between institutions and the vendor?

17. What lessons have been learned with the implementation and administrations of ILMS?

If yes can you elaborate.....

18. What strategies can be used to improve the implementation and administration of an ILMS in KZN academic libraries?

19. What recommendations can you offer to other institutions who want to engage to similar exercise?.....
.....

Appendix I: Interview Schedule Universal Knowledge Software

Please answer all questions

1. Please state your gender?

Male	
Female	

2. Kindly state your designation?

3. Please indicate the number of year in your current position?

4. How many clients do you have in KZN?

5. How are these clients chosen?

6. What sort of products or packages do you offer to clients?

7. How are these clients serviced and supported?

8. What is your turnaround response time in solving client's queries?

9. What does your package involve in relation to servicing your clients?

10. How do you solve problems relating to clients?

11. Do you ever receive complains about the type of services do you offer?

If yes describe the nature of your complaints?

12. What sort of solutions do you offer in solving your client's problems to ensure customer satisfaction?

13. Do you inform clients if there are any products and development?

If yes explain how?

14. What sort of training do you offer to your clients?

15. Any general comments or suggestions you feel will add more values when servicing your clients?