

# APPLICATION OF THE DELONE AND MCLEAN'S MODEL TO ASSESS THE EFFECTIVENESS OF AN INTRANET IN AN OPEN DISTANCE LEARNING LIBRARY



by

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## ABSTRACT

Technology enables communication and sharing of knowledge on many levels. Organizations are procuring different types of information systems to facilitate knowledge-sharing efforts and to stay relevant in this digitally competitive world. Universities are also investing in such systems, one being the intranet.

The study identified the collection of log on count statistics to assess the effectiveness of the intranet as a knowledge-sharing tool as being insufficient as it fails to address the deeper issues associated with the effective functioning of an information system. The study used the dimensions of the DeLone and McLean's model, namely, information quality, intention to use, system quality, service quality, user satisfaction and net benefits, to report on the state of the Unisa Library's intranet to assess its effectiveness as a knowledge-sharing tool. The target population consisted of all the permanent library staff members in different capacities within different directorates.

A quantitative research methodology was used to collect data by means of a self-administered online questionnaire. The results gathered from the study show that there is an awareness of the intranet within the organization. However, optimal utilization is lacking. The results further indicate that the various sources of knowledge-sharing platforms add to the inadequate exploration of the intranet. The construct of use was highly ranked in the study, which shows that while there is usage of the intranet, the usage is inadequate. The study makes recommendations to increase the usage of the intranet.

## OPSOMMING

Die tegnologie maak kommunikasie en die deel van kennis op vele vlakke moontlik. Organisasies maak gebruik van verskillende tipes inligtingstelsels as pogings om die deel van kennis te fasiliteer en om relevant te bly in 'n mededingende digitale wêreld. So ook belê universiteite in hierdie tipe stelsels, waaronder die intranet. Die studie is toegespits op die versameling van aanmeldstatistieke om die doeltreffendheid van die intranet te evalueer as 'n onvoldoende hulpmiddel vir die deel van kennis, aangesien dit nie die dieperliggende kwessies wat verband hou met die doeltreffende funksionering van 'n inligtingstelsel aanspreek nie. Die studie gebruik die dimensies van die Delone en McLean se model, naamlik: gebruik, inligtingkwaliteit, die voorneme om te gebruik, stelselkwaliteit, dienskwaliteit en gebruikertevredenheid om verslag te doen oor die stand van die intranet van die Unisa-biblioteek se doeltreffendheid as 'n hulpmiddel om kennis te deel. Die teikengroep bestaan uit die biblioteek se permanente personeellede in verskillende hoedanighede binne verskillende portefeuljes.

'n Kwantitatiewe navorsingsmetodologie word gebruik om data in te samel deur middel van 'n self-geadministreerde aanlynvraelys. Die resultate wat uit die studie volg, toon dat daar 'n bewustheid van die intranet binne die organisasie is. Die optimale benutting daarvan ontbreek egter. Die resultate dui verder aan dat die bewustheid van die verskillende hulpbronne van kennisdeelplatforms ook bydra tot die onvoldoende verkenning en gebruik van die intranet. Die gebruikkonstruk word hoog aangeslaan in die studie wat toon dat die intranet wel gebruik word, maar dat dit is egter nie voldoende nie. Verder maak die studie aanbevelings om die gebruik van die intranet te verhoog.

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# *Chapter 1*

## *Introduction and background*

### **1.1 INTRODUCTION**

Organizations today use a myriad of platforms to access organizational memory and to retrieve information about services and products offered. An intranet is one of the many technological tools or platforms adopted by organizations for the purpose of providing information and knowledge sharing, creating awareness and communicating with one another. <sup>1</sup>The use of an intranet varies from organization to organization. It is a time consuming and ongoing process to establish and maintain an intranet. Though an intranet has introduced simpler ways of collaboration, it, however, should not be seen as a tool to solve problems but a tool that enables members of staff to network, cooperate and share knowledge with each other. A multi campus Open Distance Learning (ODL) institution such as the University of South Africa (Unisa) with geographically dispersed libraries in regional centres across South Africa relies on an effective intranet to satisfy the information and knowledge necessities of staff deployed at these facilities.

This study sought to investigate the extent to which an intranet is effective in sharing knowledge. In order to grasp and measure the effectiveness of an intranet which falls within the category of information systems, the study will focus on the Information System (IS) success model of William H. DeLone and Ephraim R. McLean which was first introduced in 1992. The DeLone and McLean's model attempts to pronounce how each of the six dimensions, namely; service quality, information quality, intention to use, system quality, user satisfaction and net benefits relate to one another. The Delone and McLean's model measure information system success which is also referred to as IS effectiveness, IT

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<sup>1</sup>Stenmark, D. 2005. Proceedings of ECIS 2005.

effectiveness, IS evaluation or IT evaluation<sup>2</sup> depending on a particular focus, this particular study will use the term effectiveness as a measure of the intranet using the six dimensions of DeLone and McLean's model<sup>3</sup>. This model proved to be very popular in the IS domain as it has been quoted in more than 300 publications in an effort to elucidate the concept of IS success.<sup>4</sup>

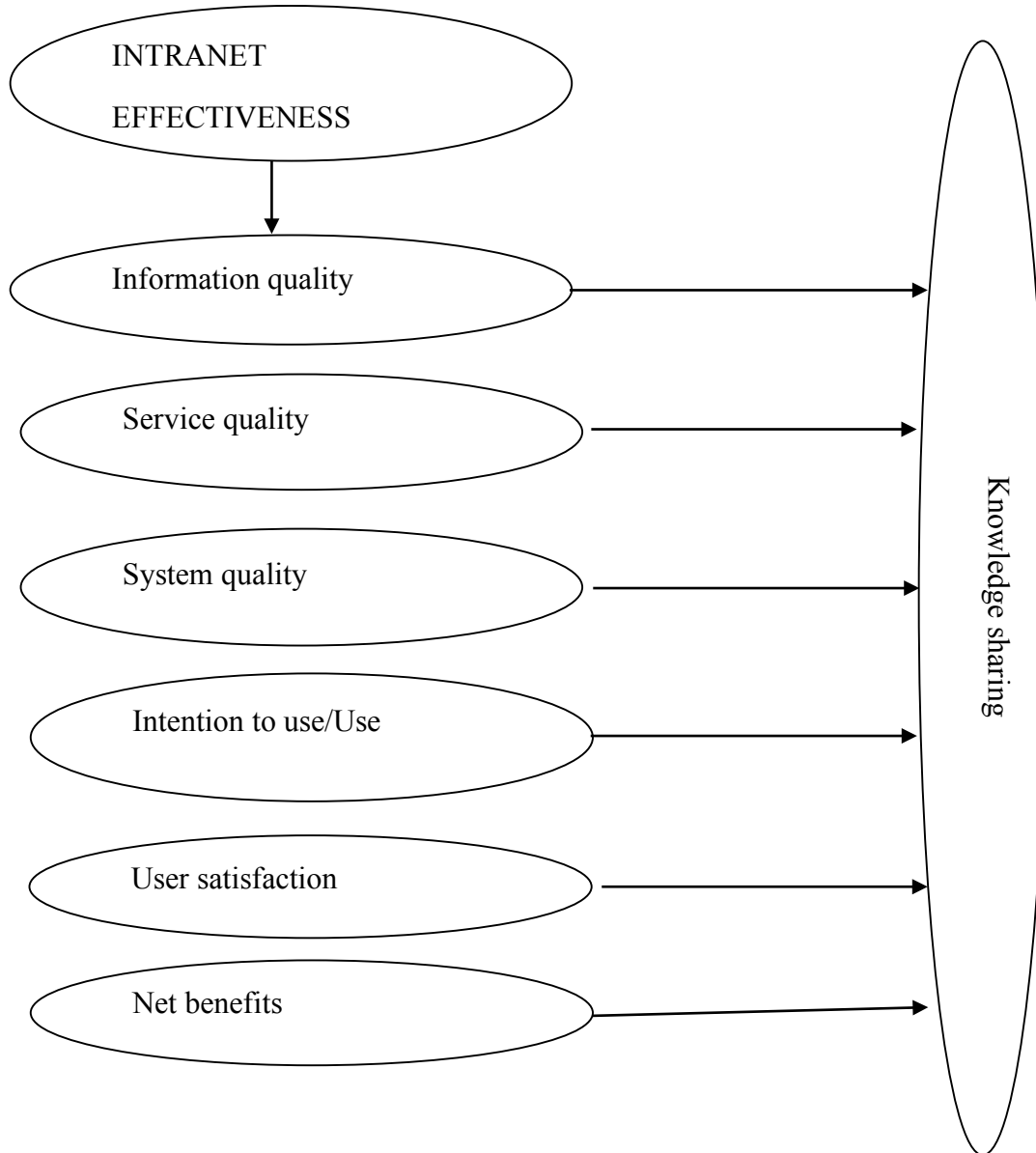


Fig. 1 The research framework

<sup>2</sup> Seddon, P.B, Graeser, V, Willcocks, L.P. 2002. *DATABASE for Advances in Information Systems*

<sup>3</sup> Petter, S, DeLone, W, McLean, E.R. 2013. *Journal of Management Information Systems*

<sup>4</sup> Petter, S, DeLone, W, McLean, E. 2008. *European Journal of Information Systems*

Figure 1 displayed above, depicts the framework of the research, which seeks to traverse the relationship of six dimensions of the information systems success model identified from the literature utilized to assess information systems. The framework depicts an intranet as a tool to be assessed to measure if the presence or absence of the dimensions affects or influences knowledge sharing in an organisation. The framework will assist in understanding the questions that motivated this study.

## 1.2 THE SETTING

Lifelong learning is not optional but a necessity in the knowledge economy. Distance learning options have been in existence for many years because of the expansion in education. Technology played a fundamental role in the development process as the world of work changed. This technological advancement dictated and demanded that people empower themselves to support economic growth. However, the challenge was that people could not leave their formal employment and study full time. This challenge saw the birth of ODL as a connection, which closes the gap between studying and formal employment. The fundamental use of ODL when it first entered the education landscape was for basic education, schooling, tertiary education, and vocational education and training.<sup>5</sup> The use of ODL has since expanded particularly with the advent of technology and socio-economic influences.

The development of open universities in the last 20 years has seen a proliferation of distance learning and a growing number of contact universities introducing or expanding distance education departments within their institutions.<sup>6</sup> When the use of technology entered the fray of distance education, Unisa reengineered its mode of delivery by adding e-learning. The business model of the institution changed to Open Distance e-learning (ODeL), which combines open learning characteristics and distance delivery.<sup>7</sup> The new dawn of e-learning

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<sup>5</sup> Perraton, H. 2012. Open and Distance Learning in the developing world

<sup>6</sup> Perraton, H. 2012. Open and Distance Learning in the developing world

<sup>7</sup> Arinto, P.B. 2013. The International review of research in Open and distributed learning

meant that processes and systems within the institution needed to transform to integrate the new business model referred to as ODeL. The Unisa Library had to transform and include e-learning into their mode of delivery and accessibility to services and resources. The ODeL model saw the library leaning more on electronic means of providing a service to its clients and staff. For the purpose of this study, the Unisa Library will be referred to as *the library*. The library boasts a collection of over 27 million items with a total staff component of 269 permanent and a handful of fixed-term contract workers.<sup>8</sup>

The library is as old as the University itself, having been established 141 years ago with a sizeable number of staff, geographically dispersed in regional centres in all the nine provinces of the country and one regional office in Ethiopia. Information resources and services are spread across all branch libraries. Quick and easy access to information is vital, especially in academic libraries with the mandate of supporting teaching, learning, research and community engagement. The application of ICT in libraries is important to provide the necessary facilities to the user community. The library staff relies on an intranet to connect with other members of staff in regional offices. Therefore, it is important to have a functional intranet.

### **1.3 THE PROBLEM**

A dysfunctional intranet system can affect the quality of service and performance of library staff. Research revealed that some organisations launched intranets without a clearly defined objective or strategy which resulted in systems with a diminutive bearing on the business processes, knowledge sharing and decision-making processes<sup>9</sup>. In practice, the deployment of an intranet has in many instances failed to deliver the anticipated value as the information system fail to live up to expectations<sup>10</sup>. Unisa has recently rolled out an Enterprise Content Management system (ECM) with the sole purpose of centralizing business processes and managing workflows within the institution. Currently, there is an existing university intranet used by all staff members, which serves the purpose of a “go to” system for institutional information. The library has its own intranet exclusively used by the library staff only with

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<sup>8</sup> Sourced from the Unisa website. [www.unisa.ac.za](http://www.unisa.ac.za). Accessed 29 November 2015

<sup>9</sup> Stoddart, L. 2001. Online Information review

<sup>10</sup> Stoddart, L. 2001. Online Information review

the intent to manage information and share knowledge. The library's intranet is technologically maintained from the university's ICT Department and the Corporate Communications and Marketing (CCM) Department perform the branding of the system. The library ICT staff's responsibility is to upload information on the intranet. This arrangement leaves the library ICT staff with little control over the maintenance as well as look and feel of the intranet. The library relies heavily on the log on statistics to evaluate the usage of the intranet. If no efforts are made to improve and maintain the intranet system continuously, the library will struggle to deliver on its mandate to be the preferred information partner in the library and information fraternity. The log on count on its own is not a good measure to evaluate the effectiveness of an intranet to enable the library staff members to share knowledge. Knowledge sharing in an organization is important as it assists in standardizing processes, skills transfer, taking ownership of projects and tasks among others.

Many approaches used to measure the success or effectiveness of an intranet are usually based on financial indicators such as total cost of ownership and return on investment,<sup>11</sup> which do not provide a clear picture of the position of an intranet. The research study sought to take a different approach in the sense that its focal point is the intranet's knowledge sharing capability. The study further combines the concept of knowledge sharing with information system by assessing the effective of an intranet using DeLone and McLean's model of using six dimensions, namely; net benefits, system quality, information quality, service quality, intention to use and user satisfaction to gauge the success of information systems of which intranet is one but many of such systems.<sup>12</sup>

#### **1.4 AIM OF THE STUDY**

The study aims to assess the effectiveness of the library intranet for knowledge sharing among staff members. This study will attempt to develop new findings or confirm existing findings by employing the DeLone and McLean's model to measure the effectiveness of an intranet at the library.

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<sup>11</sup> White, C. 2003. Determining Enterprise Portal ROI



## 1.5 RESEARCH OBJECTIVES

To achieve the purpose of this study, the following research objectives will be pursued:

- To examine the relationship between the service quality and the staff members' intention to use the intranet;
- To determine whether the library staff members are satisfied with the information quality of the intranet;
- To investigate whether the library staff is satisfied with the system quality of the intranet;
- To investigate whether the library staff members are satisfied with the intranet as a tool to share knowledge; and
- To investigate whether the intranet provides the anticipated net benefit for the library.

## 1.6 RESEARCH QUESTIONS

From the above discussion and taking a closer look at the DeLone and McLean's' model, the question of *how effective an intranet is, as a knowledge sharing tool in an ODL Library* arose. The following crucial questions need to be asked to get to the deeper issues regarding effectiveness of the intranet in the library:

- Does the service quality provided by the intranet impact on the library staff's intention to use the system?
- Is the quality of information residing on the intranet generally satisfactory for use?
- Does the system quality of the intranet encourage its usage?
- Is the intranet generally effective to share knowledge among staff members?
- Does the intranet provide the anticipated net benefit for the library?

## 1.7 SIGNIFICANCE OF THE STUDY

It has been anticipated that the study will generate new knowledge and understanding on the intranet as a tool used to share knowledge sharing in ODL Libraries. The strengths and weaknesses of an intranet as a tool to share knowledge will be identified and proper improvement plans will be put in place to ensure that the tool is optimally used for the intended purpose. The study will contribute towards intranet policy making and an improvement of information and knowledge systems in ODL libraries. The DeLone and

McLean's model has been used and applied in business environments to measure information system success. Therefore, using the model to measure an information system in an ODL environment will add value to the body of knowledge of ODL institutions and can possibly be adapted to be used in contact academic libraries as very little research has been conducted in that area.

## **1.8 RESEARCH METHODOLOGY**

An extensive literature study has been conducted to understand the empirical research on the subject of knowledge sharing and information systems and similarly to cover the theoretical foundations of the concepts particularly in relation to DeLone and McLean's model. The target population is located in different regional offices across the provinces of the country and one regional office in Addis Ababa in Ethiopia. It is for this reason that a quantitative research design has been employed for this study as the respondents are dispersed geographically. A quantitative research design was considered as suitable to use in the study. Moreover, the perceptions of users on the effectiveness of intranet were captured in a form of numerical data, measured, counted and various scales were used for statistical analysis. A self-administered questionnaire comprising close-ended questions has been developed and administered to the library staff members. The questionnaire was made available electronically via Survey Monkey to elicit responses from respondents. All library staff members in the different regions and branches will be included in the survey. A list of the library staff members was requested from the Human Resources Department to assist the researcher in sending the questionnaire to the correct individuals.

## **1.9 OVERVIEW OF LITERATURE**

The concept of knowledge sharing has been researched extensively over time. A preliminary investigation into the literature on the topic revealed various perspectives on knowledge sharing and knowledge management. These included systems, processes, strategies, organizational culture, models to measure the intranet and its effectiveness. There is a myriad of measurement tools used to measure intranets; however, the researcher opted for the DeLone and McLean's model to measure information system success. According to the researcher, the model is sufficiently comprehensive to cover the issues that the study sought

to address. The researcher provided a synopsis of other popular models used to measure IS. A detailed literature review will be presented in Chapter 2.

## **1.10 THESIS LAYOUT**

The study will be presented in five chapters:

### **Chapter 1: INTRODUCTION AND BACKGROUND**

The chapter will introduce the study. A discussion on the research problem, related research questions, a synopsis of important concepts related to the study, aim and significance of the study as well as the research methodology will be discussed in this chapter.

### **Chapter 2: INTRANET, KNOWLEDGE SHARING AND INFORMATION SYSTEMS**

An in-depth literature review on knowledge sharing, usage of an intranet, different models to evaluate information systems, the effectiveness of an intranet and the usage of DeLone and McLean's model in measuring intranet effectiveness and related matters will be covered in this chapter.

### **Chapter 3: RESEARCH METHODOLOGY**

The chapter will focus on research methodology including a research design and instruments used to collect research data.

### **Chapter 4: DATA ANALYSIS AND INTERPRETATION**

Data collected from the respondents will be analysed of using different statistical techniques.

### **Chapter 5: FINDINGS, LIMITATIONS, RECOMMENDATIONS AND CONCLUSION**

The chapter will cover the findings from the analysed data, provide concluding remarks, limitations and recommendations that will assist in future research.

# Chapter 2

## *Intranet, Knowledge sharing and information systems*

### 2.1 INTRODUCTION

The chapter provides a discussion on reviewed literature on the research topic and focuses on describing the major themes of the study, namely; intranet, knowledge sharing and information systems. Different concepts within the themes are also discussed. The chapter further discusses the different information system models that are relevant to the study and drill down to the dimensions of the DeLone and McLean's model in order to justify the application of the model on information system success as relevant for this particular study.

### 2.2 INTRANET

The concept “intranet” was initially coined by Lawton<sup>13</sup> in an article published in the Digital News & Review of 19 April 1995. The intranet is seen as a technical infrastructural tool to aid interaction and collaboration between different groups of people in the workplace to enhance and expand information-sharing and increase the overall knowledge basis of all staff. An intranet is suitable for use in organizations as a strategic tool within the framework of knowledge management to enhance the organization's knowledge sharing processes.<sup>14</sup> In this study, an intranet is viewed as an information system used as a medium for sharing knowledge and not particularly as a hardware computer system. There are many definitions of the intranet depending on where the user's focal point is, which could be on technology or purpose and use. Three main characteristics of an intranet namely; cognitivist, connectionist,

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<sup>13</sup> Lawton, S.M. 1995. *Digital news and reviews (online)*

<sup>14</sup> Edenius, M, Borgeson, J. 2003. *Journal of Knowledge Management*

and autopoietic were identified in the context of knowledge sharing.<sup>15</sup> The first characteristic, cognitivist is focused on the intranet as a repository of cultural and social explicit information. The second characteristic, connectionist, is a tool that encourages staff to engage in conversation to not only share information but also to analyse knowledge shared and to locate hidden institutional information. As the third characteristic, autopoietic describes the intranet as a directory. The second characteristic of connectionist will be the focus area, with specific reference to two areas of knowledge management, namely; storage and use of information.<sup>16</sup> An effectively working intranet should be easy to use, reliable and relevant to allow the unification of key business applications and tools.<sup>17</sup> Intranet usage varies from organization to organization and ranges from publishing information to facilitating knowledge management processes of socialization, externalization, combination and internalization.

### 2.2.1 Effectiveness

The effectiveness of the intranet refers to the propensity to accomplish a purpose and producing the desired results.<sup>18</sup> The literature on intranet effectiveness has revealed that there is a number of ways to measure the intranet. The measurement can be according to the user or individual level or organizational level. The constructs of the Technology Acceptance Model (TAM), which prescribes to the principles of perceived usefulness and ease of use, were used to assess the effectiveness of an intranet according to the individual level.<sup>19</sup> Several authors measured effectiveness as that which promotes employee commitment to their work<sup>20</sup>; Murgolo-Poole et al<sup>21</sup> measured the effectiveness in terms of disseminating corporate intelligence; Miller<sup>22</sup> sees intranet as an effective tool for service quality; Wilkie<sup>23</sup> sees

<sup>15</sup> Skok, C, Kalmanovitch, C. 2005. *Information and Management*

<sup>16</sup> Skok, C, Kalmanovitch, C. 2005. *Information and Management*

<sup>17</sup> Hall, H. 2001. *Journal of Information Science*

<sup>18</sup> <http://dictionary.reference.com/> (accessed on 31 January 2014)

<sup>19</sup> Chang, P.V. 2004. *unpublished master's dissertation*

<sup>20</sup> Weber, P.C. 2002. *unpublished master's dissertation*

<sup>21</sup> Murgolo-Poore, M.E. Pitt, L.F, Ewing, M.T. 2002. *Public relations review*

<sup>22</sup> Miller, R. 2004. <http://www.prescientdigital.com/articles/intranet-articles/measuring-intranet-effectiveness> (accessed: 10 February 2015).

<sup>23</sup> Wilkie, J.K. 2005. *unpublished master's dissertation*

intranet as supporting user task. Equally so, there are a number of authors who have varying interpretations of intranet effectiveness at an organizational level. Damasgaard and Scheepers<sup>24</sup> together with Stenmark<sup>25</sup> proposed the measurement of an intranet in terms of encouraging knowledge sharing. The DeLone and McLean's model was applied to measure the effectiveness of the Unisa Library intranet to share knowledge. An effective intranet should be able to provide benefits to an organization or increase its performance.<sup>26</sup> The investment made by organizations on IS should bear the necessary returns.

### 2.2.2 Utilization of an intranet

Literature reveals that the manner in which intranet is utilized in an organization depends on the intricacies and the extent to which is developed and the level of its maturity. There are as many uses of the intranet as there are terminologies from one industry to the next. An intranet is at times referred to as a website, portal, knowledge management system (KMS), corporate enterprise, information technology systems though the definition is similar. Intranets are continuous projects in organizations and need to be modified and maintained to meet the business needs of organizations. The success of an intranet as a single entry point and access in organizations permits for the integration of communication, information, knowledge sharing, information management, applications and business processes within an organization, which essentially deems it a principal tool through which employees perform work responsibilities and improve overall organizational performance<sup>27</sup>.

The information-centric perspective of an intranet suggests that for an intranet to be successful in any organization it is vital to include users of such a tool and the necessary mechanism for users to discover and engage with one another. In addition, the information-centric view suggests that an intranet should provide a platform that enables discourse, reflection and outlook. Intranet technology is broadly categorized into two types:

- Communication which facilitates the exchange of information and knowledge; and

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<sup>24</sup> Damasgaard, I, Scheepers, R. 2001. Paper presented at the 9<sup>th</sup> *European Conference on information systems*

<sup>25</sup> Stenmark, D. 2005. *Proceedings of ECIS 2005*

<sup>26</sup> Knight, S.A, Burn, J. 2005. *Information Science Journal*

<sup>27</sup> Urbach, N, Smolnik, S and Riempp, G. 2011. *Business Process Management Journal*.

- Collaboration which creates, stores and utilizes information and knowledge for colleagues Chmiel.<sup>28</sup>

Stenmark,<sup>29</sup> who views an intranet as an organization-wide tool that supports and facilitates everyday work and should, in fact, incorporate the information and collaboration broadened this categorization. In essence, an intranet should not only be used as a tool where colleagues can find information but also cooperate in creating and sharing knowledge. Stenmark<sup>30</sup> argues that intranets should not be supporting the informational aspect only but also allow people to communicate and collaborate in communities of practice; he further developed a model to define the intranet's support for knowledge management, which is depicted in figure 2. below.

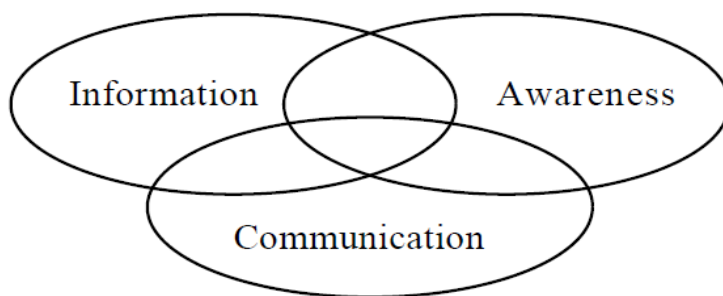
The *information space* of the intranet provides colleagues with access to information that resides on organizational databases and documents. Most importantly, colleagues are granted an opportunity to network with one another. The *communication space* allows colleagues to internalize what has been communicated and provide different interpretations and perspective that has been communicated. The collaboration space further provides colleagues with an opportunity to cooperate in projects and share in the library's vision and work towards a common goal. The *awareness space* is equally important to ensure that colleagues are aware of the information within an organization through having access to the same information or through having authored the same documents. The awareness space suggests that staff members should exploit both tacit and explicit links to be able to connect with other people. Measures should be put in place to ensure that staff members are constantly reminded of the new information that is made available and are also made aware of the other colleagues who have accessed the same information.

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<sup>28</sup> Chmiel, N. 2008. *An introduction to work and organizational psychology: A European perspective*

<sup>29</sup> Stenmark, D. 2005. *Proceedings of ECIS*

<sup>30</sup> Stenmark, D. 2005. *Proceeding of ECIS*



*Fig 2. A multi-perspective view of the intranet*

The model shows that the person sharing knowledge selects the knowledge to be shared on the intranet and the person receiving the knowledge will retrieve the required knowledge and integrates it to his or her own knowledge.<sup>31</sup> However, the focus of the study is not entirely on the philosophical understanding of knowledge and the sharing but also zooming in knowledge sharing from the information system perspective. In addition to the multi-perspective view displayed in figure 2 above, certain features of the intranet can be used to provide communication support and exclusive information to be used by the internal library community<sup>32</sup>. It is evident from the above discussion that as much as the uses of the intranet differ from one organization to the next, there are strong similarities in terms of the overall value and use of the tool.

### **2.2.3 Intranet usage in Universities**

The current competitive academic atmosphere compels universities and all institutions of higher learning to search for innovative means of attracting, retaining and sustaining stakeholder relations. The need for an intranet in a university is influenced by the current state of technology and its use in a society that has an influence on university competitiveness and decentralized information services that generate a challenging user interface within the entire organization.<sup>33</sup> Expectations to have easy business transactions from stakeholders within a university are high. Centralization of services and access points are key and can be resolved by the implementation of an effective intranet. This will ensure that universities move from being IT-centric to business-centric thinking units, and view an intranet as an

<sup>31</sup>Stenmark, D. 2005. *Proceedings of ECIS 2005*

<sup>32</sup> Weiner, S.T. 1999. *Econtent*

<sup>33</sup> Sulaiman, F, Zailani, S, Ramayah, T. 2012. *Procedia-social and behavioral sciences*



information technology enabler, which is a means to an end and not an end itself.<sup>34</sup> Universities have implemented some form of an information technology tool to manage business activities. However, questions about the efficiency of such a tool are yet to be addressed.

#### **2.2.4 Intranet in university libraries**

The pivotal role of university libraries is to support teaching, learning, research and community engagement and to satisfy the mission and vision of the parent institution. Academic libraries offer a plethora of services ranging from document delivery, access to information, reference services, information searching and retrieval, and collection development amongst others.<sup>35</sup> Due to recent developments in Information and Communication Technology (ICT), university libraries are forced to adapt or perish. They have stood up to the challenge and have embraced the use of ICT-based technology to meet the needs of their users and to share knowledge with colleagues.<sup>36</sup> The study conducted by Mphidi and Snyman<sup>37</sup> on utilization of an intranet by three academic libraries supports the notion of an intranet being utilised to share knowledge. In addition, the same study showed that academic libraries in South Africa are actively conscious of the intranet and essentially use it to share knowledge. The researcher acknowledges that the particular study cannot be regarded as demonstrative of all the other academic libraries; the results of the same study show that academic libraries do not entirely optimize the potential of the intranet<sup>38</sup>. The information on the intranet must be kept up to date, add value to the staff and address their information and knowledge needs.

An intranet forms part of the organizational internal information system, devoted to the support of group work and understanding of organizational knowledge.<sup>39</sup> The usage of an

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<sup>34</sup> Sulaiman, F, Zailani, T, Ramayah, T. 2012. *Procedia-Social and behavioral sciences*

<sup>35</sup> Husain, S and Nazim, M. 2014. *Use of different information and communication technologies in Indian academic libraries*

<sup>36</sup> Woodward, J.A. 2009. *Academic library association*.

<sup>37</sup> Mphidi, H and Snyman, R. 2004. *The Electronic library*

<sup>38</sup> Mphidi, H and Snyman, R. 2004. *The Electronic library*

<sup>39</sup> Bottazzo, V. 2005. *Information services and use*.

intranet as a knowledge sharing tool in the business management and law environment has been highlighted; however, few studies were conducted on intranet usage in academic libraries. The intranet is one of the many information technology tools used and adopted by organizations in many industries. Though this particular study relates to an ODL library, the study conducted by Mphidi<sup>40</sup> on intranet usage in academic libraries is equally relevant as it revealed the utilization of an intranet as a knowledge management tool with specific focus in academic libraries. However, there is room for improvement as not all the required information was available on the platform. The contents of an intranet must be maintained regularly to house up to date and relevant information. The current study touches on the contents of an intranet and excavate deeper into what is useful to staff members within an organization.

Through the use of an intranet, staff members should be enabled to acquire tacit and explicit knowledge from one another. In an environment where knowledge sharing tools are used, there will always be a transaction of ideas as there will be knowledge seekers and knowledge owners. ICT-based tools and applications are broadly used in libraries to expedite networking and resources sharing, eradicate duplication of efforts, and increase the speed to perform operations. Libraries use the tools to strengthen access to information resources by clients and improve the quality of information services. These web application tools are utilized to improve the exchange of information flow and knowledge sharing between librarians and library users<sup>41</sup>. Intranet as a web application tool is vital for knowledge and should add value to an organization. The findings from a research study revealed that almost if not all libraries use e-mail and library website as part of their communication system.<sup>42</sup>

### **2.2.5 Usage of an intranet at the Unisa Library**

The library's intranet was developed for its internal staff members only, its content is accessed through an authentication process which requires the usage of a staff members' network username and a password to log on to the University network. The library's intranet

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<sup>40</sup> Mphidi, H and Snyman, R. 2004. *The electronic library*

<sup>41</sup> Mavodza, J and Ngulube, P. 2012. *S A Journal of Information management*

<sup>42</sup> Husain, S and Nazim, M. 2014. *Use of different information and communication technologies in Indian academic libraries*

operates on a Content Management System<sup>43</sup> platform which is a software application used to create and manage digital content. The maintenance of the intranet is dependent on contributions received from the library staff members within the different directorates. The process to update the intranet is cumbersome as all requests to post information items on the intranet should be channelled through the Director of the requestor's respective directorate. The lengthy process is discouraging as posting news items take a while before being updated on the intranet. There is however very few staff members permitted to send requests directly to the Library Web Coordinator due to the nature of their work. The other challenge is that the performance or usage of the library's intranet is currently measured through a log on statistics system which is not a clear indicator of the actual usage as it only displays the number of visits to the intranet. Previous studies on some of the factors that influence the usage of an intranet propose that acceptance behaviour could be due to situational influences.<sup>44</sup> The current process of depositing news items on the intranet can be seen as a barrier that discourages usage of the tool. Literature states that a functional and interactive intranet should contain the following items<sup>45</sup>:

- *Agreements*: between service providers and the organization or institution;
- *Annual budget*: provided by the organization;
- *Archives*: source of information stored and systematized for easy retrieval;
- *Bulletin boards*: placement of notices, announcements and news;
- *Directories*: contact details of staff;
- *Discussion forums*: applications facilitating interactive communication and knowledge contributions;
- *Electronic magazines*: online magazines or accessed electronically;
- *Forms*: application forms for different processes;
- *News*: all matters concerning staff;
- *Points of interest*: comments, suggestions and any information that might interest staff members  
Management information: information from top management;
- *Policies*: adopted or proposed by the organization;

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<sup>43</sup> [www.searchsoa/techtargget.com](http://www.searchsoa/techtargget.com) - accessed 12 January 2017

<sup>44</sup> Sangjae, L, Byung, G.K.2009. *Computers in human behavior*

<sup>45</sup> Mphidi, H and Snyman, R. 2004. *Electronic library*

- *Reports*: reporting on activities, meetings, business and seminars;
- *Templates of letters*: centrally kept and finalized; and
- *Training material*: policies related to training.

In addition to the above list, an intranet designed to share knowledge should contain discussion forums and bulletin boards with contents that have a significant impact on the usage by staff.<sup>46</sup>

An investigation into the items contained on the library intranet revealed some possible gaps on the standard items that should be included on a typical intranet. The perceived gaps in comparison to a typical intranet could be more appealing to the library staff and be seen as *fit for purpose* for the organization. The question of whether these items deem the library's intranet effective or not still remains. The question will be answered in Chapter four when the collected data is analysed. The below items are contained on the library's intranet.

- Projects – All the library projects undertaken in the Library;
- Staff development – guidelines and application process for training;
- Forums and workgroups – minutes and agenda points for all the committees, forums and workgroups;
- Technology support – all technology related technical support;
- Statistics – library statistics for the different services offered;
- Reports – corporate reports;
- Forms – templates for services required;
- Brochures – information brochures; and
- Staff list – contact list of personnel and service areas.

## 2.3 KNOWLEDGE SHARING

### 2.3.1 Introduction

The sharing process ensues when a resource is given by one party (sender) and received by another (receiver). Prior to the discussion on the concept of knowledge sharing, it is

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<sup>46</sup> Robinson, H. 1999. *The law librarian*

important to provide the basis of how knowledge originated. A brief discussion on the three concepts, namely; data, information and knowledge provide an understanding of the relationship between the concepts and the origin of knowledge. There is a clear distinction between data, information and knowledge. Despite the three concepts having been used interchangeably over the years, they yet remain very confusing. Data are defined as raw descriptions or observations about the state of past, present or future worlds and information as patterns that an individual finds in these data<sup>47</sup>. Becerra-Fernandez and Sabherwal<sup>48</sup> view data as representing raw numbers or assertions and may, therefore, lack context, meaning or intent. The interpretation of the two definitions could mean that data on its own does not have any meaning. Becerra-Fernandez and Sabherwal further state that although data are devoid of context, meaning and intent, they can easily be captured, stored and communicated using electronic or other media.

The weight in terms of the order of importance of the three concepts, data, information and knowledge depend on how they are used. From an information technology or information system perspective, data can be seen as most valuable as compared to information and knowledge. From an information science perspective, information and knowledge can be seen as the most valuable. The value-add of any of the three concepts depends on how the concept is used and in which context. Information is data that are refined to a point of being useful as they provide meaning. Information involves the process of manipulating data to find meaningful ways of indicating patterns or trends. Davenport and Prusak<sup>49</sup> describe information as a message, which is usually presented in a form of a document and has a sender and a receiver. The intended usage of information is to change the receiver's judgment and behaviour towards what has been sent to him and how he perceives it. From the above definition, information can be viewed as the next level of data which is a more refined product.

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<sup>47</sup> Davenport, T and Prusak, L. 1998. *Working knowledge: how organizations manage what they know*

<sup>48</sup> Becerra-Fernandez, I and Sabherwal, R. 2010. *Knowledge management systems and processes*

<sup>49</sup> Davenport, T and Prusak, L. 1998. *Working knowledge: how organizations manage what they know*

Knowledge is what people know and have learned through their interactions and experiences. In addition, knowledge is a justified belief about relationships among concepts relevant to that particular area<sup>50</sup>. Knowledge is acquired through daily interactions and conversations with people. An intranet can be used to store knowledge which has been an input from data and an output from information. Individuals who possess the same understanding of data and information will be those who share a certain knowledge source and foundation.<sup>51</sup> The said individuals must have the same common understanding on issues. In many instances, the knowledge base could have been acquired tacitly. Organizations commit the mistake of not paying too much attention to the tacit knowledge possessed by their employees. The focus in most cases is on explicit knowledge. Data, information and knowledge are interlinked and influence each other. The value-add entailed by each of these three concepts depend on the intended purpose for use. Interpretation of data and information requires knowledge to put the pieces of the puzzle together. On the same breath, data and information are the building blocks for knowledge as depicted in figure 3 below.

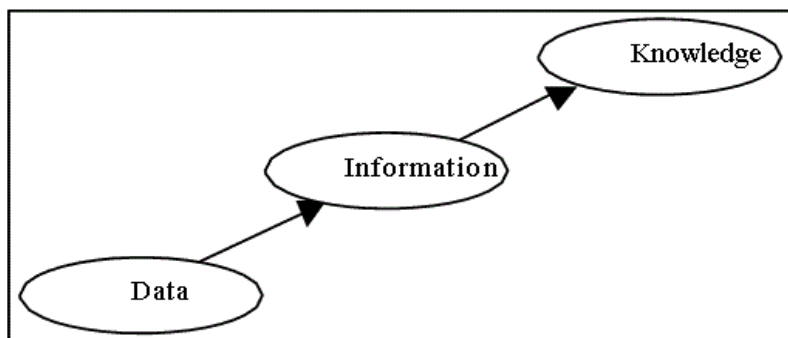


Fig. 3. Source Stenmark, d (2001). "The relationship between information and knowledge" in proceedings of IRIS-24.

Knowledge is defined operationally as:

...a fluid mix of framed experiences, values, contextual information and expert insight that provides a framework for evaluating and incorporating new experiences and information. It

<sup>50</sup> Nonaka, I and Takeuchi, H. 1995. *Oxford University Press*

<sup>51</sup> Alavi, M and Leider, D.E. 2001. *MIS quarterly*

originates and is implied in the mind of the knower in organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices and norms.<sup>52</sup>

The above definition of knowledge encompasses all aspects on an organizational knowledge as it covers all spheres of tacit and explicit knowledge of an organization. Knowledge is owned by individuals within an institution but managed by the institution. The ownership in this instance refers to the individuals' responsibility to create, acquire, transfer and share this knowledge. However, the ownership does not refer to the intellectual property as what is created by an individual during their tenure remains the property of the institution. The latter statement may be challenged by many scholars who will not form part of this study as the focus of this study is not on intellectual property but on sharing knowledge using a technological tool.

### **2.3.2 Knowledge sharing in context**

In this competitive and ever-evolving environment, many organizations saw the need to initiate knowledge management with the sole purpose of identifying and using its knowledge assets to encourage innovation and improve performance. Knowledge management is defined as *a strategy of getting the right knowledge to the right people at the right time and helping people to share and put information into action in ways that seeks to improve organizational performance*.<sup>53</sup> For this knowledge management definition to be operationalized, people should be willing to share the knowledge. It is also clear from this definition that knowledge sharing plays a pivotal role in knowledge management processes and efforts need to come from different angles to ensure that the sharing occurs.

Knowledge sharing is not a new concept and has been defined in literature in different ways. These include being involved in the exchange of employee knowledge, experiences, and skills through an organization.<sup>54</sup> Employees in this instance refer to all persons within an organization from shop floor employees to executive management, as sharing can be

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<sup>52</sup> Davenport, T, Prusak, L. 1998. *Working knowledge: how organizations manage what they know*

<sup>53</sup> O'Dell, C and Grayston, C.J. 1998. *California Management Review*

<sup>54</sup> Lin, C-P. 2007. *Journal of business ethics*

conducted from bottom –up, top-down and across. Literature revealed four mechanisms of how individuals can share knowledge; knowledge can be contributed to organizational databases, knowledge can be shared in informal discussions within individuals, knowledge can be shared in formalized settings within individuals and lastly, it can be shared among people with common interest in a community of practice.<sup>55</sup> These mechanisms can be facilitated by using an intranet as an enabler.

### **2.3.3 Knowledge sharing in university libraries**

The interest and attention that society has on information and knowledge particularly in today's economic climate see knowledge as a driving force for economic and social advancement in many fronts. The state of affairs forces universities to review the manner in which knowledge is shared, moving from a traditional role to a resource-based and collaborative role.<sup>56</sup> Many studies have been conducted on knowledge sharing over the years. However, it is only recently that there is an emerging interest in the library information science (LIS) profession. Xiapong and Rui are among the first authors who contributed to the ongoing discussions on knowledge management and knowledge sharing in libraries.<sup>57</sup> Shanhong entered the fray and contended that libraries can manage knowledge creation and sharing among staff. In addition to that, libraries should create and develop their own document information resources and use expert systems to share knowledge.<sup>58</sup> From the above brief discussion, one can deduce that knowledge sharing is as important in libraries as it is in other environments. What is shared might differ from person to person depending on the industry. It is against this background that an organization's intranet should be continuously reviewed to ascertain its effectiveness in facilitating knowledge sharing.

### **2.3.4 Intranet as a knowledge sharing tool at Unisa Library**

The advent of technology has created new possibilities for organizations and increased their competitive advantage. Over the years, organizations have moved from the traditional way of operation to the integration of technology to assist in redesigning their business processes.

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<sup>55</sup> Bartol, K.M, Srivastava, A. 2002. *Journal of leadership and organizational studies*

<sup>56</sup> Parirokh, M. Daneshgar, F, Fattahi, R. 2008. *Library review*

<sup>57</sup> Parirokh, M. Daneshgar, F, Fattahi, R. 2008. *Library review*

<sup>58</sup> Shanhong, T. 2000. *IFLA 66*



Moreover, organizations have adopted technologies such as intranets to improve internal communication, information distribution, knowledge exchange and an opportunity for employees within such organizations to have access to such systems.<sup>59</sup> Intranets in their nature encourage collaborations, cooperation and knowledge sharing.<sup>60</sup> The library's staff members are geographically spread across the country and the intranet provides a faster and "just in time" approach to information, knowledge interchange, common interface, the ease of publishing, exchange and learning, support of virtual teams and better access to internal information. An intranet is a knowledge sharing system that primarily assists organizations to acquire and share tacit and explicit knowledge created by people within the same organization Becerra-Fernandez and Sabherwal.<sup>61</sup>

Theoretically, the use of an intranet is set and clear, while in practice the tool has a potential not to deliver the expected results or anticipated value add. KMS with an intranet falling within that category assists in ensuring that individuals contribute their knowledge to a wider scope than keep it to themselves or share it only with a selected few. The intranet requires constant improvements and regular monitoring and should contain valuable information to assist the library with decision-making processes. As it stands, the library intranet has both benefits and shortcomings. The platform or tool has been in existence for many years and provides staff with important information about the library and keep the staff abreast of notices and news.

The challenge is that the intranet operates on old technology and new functionalities such as web design tools used to facilitate social relationships, collaboration and communication,<sup>62</sup> cannot be integrated and are lacking on the library intranet. The university has implemented a document management system termed Enterprise Content Management (ECM) system with a policy in the process of being drafted that compels people to save all work contents on the ECM. This leaves little room for the library staff to share knowledge on the intranet as

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<sup>59</sup> Muller, J.N. 2002. *New directions in internet management*

<sup>60</sup> Pitt, L, Murgolo-Poore M, 2003. *Journal of change management*

<sup>61</sup> Becerra-Fernandez, I and Sabherwal, R. 2010. *Knowledge management: systems and processes*

<sup>62</sup> Mahmood, K and Richardson, J.V Jr. 2011. *Adoption of Web 2.0 in US academic libraries: a survey of ARL library websites*

knowledge will be shared through ECM. The introduction of ECM seems to be counterproductive and impact negatively on the use or non-use of the library intranet.

## 2.4 INFORMATION SYSTEMS

### 2.4.1 Introduction

Organizations engage in huge investments in information systems with the expectations of positive results for an organization. There is mounting pressure for organizations to justify the return on investments made for procuring information systems. An information system popularly known as IS is defined as the collection of technical and human resources that provide the storage, distribution, computing and communication for the information required by all or some part of an organization.<sup>63</sup> The success of an information system is constantly under the spotlight as different measures have been employed over the years to measure information system success or the success of technology tools. It must be noted that the term success on information system success is relative and relies on who the user or the audience is at the time and what the envisioned purpose of the system is. Success can be measured or evaluated at different levels, namely; technical, individual, group and organizational.

Different stakeholders can have different thoughts of success of the same information system.<sup>64</sup> The measurement of information system success is of major concern to organizations, which is evidenced by the many studies conducted over the years and models developed to establish and measure IS success. An intranet which is a form of an information system is a platform used to store and access information to manage an organization and is the focal point of the discussions on the study. This section of the research provides a brief background of information systems, what constitutes an information system and a description of frequently used and most cited information system (IS) evaluation models in different disciplines. An information system is a result of information or a message in communication systems which can be observed at various levels; technical, semantic and effectiveness level. The technical level is concerned with the exclusiveness and the extent to which a system is

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<sup>63</sup> <http://whatis.techtarget.com>: accessed 08 December 2015

<sup>64</sup> Molla, A, Licker, P.S. 2001. *Journal of electron commerce Res*

efficient. Effectiveness is seen as an influence which comes at the receiving end of the chain of events of an information system and may be used to identify the strategies of measuring productivity at the influence level, which is at the end of the of the chain.<sup>65</sup>

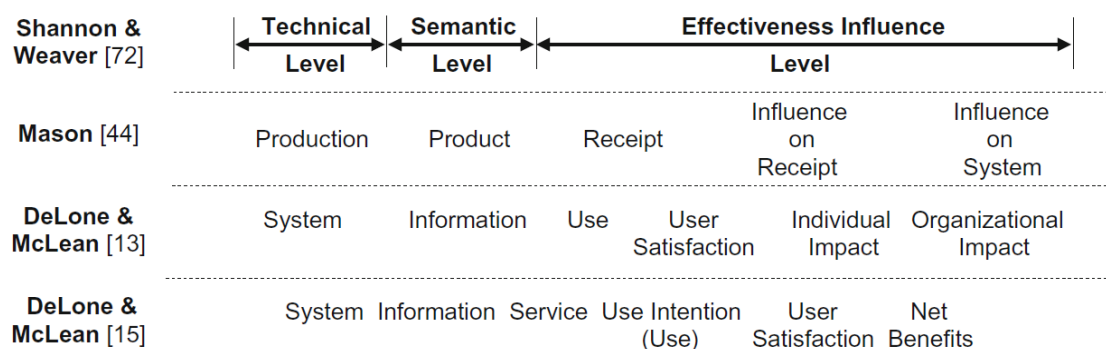


Fig 4: Categories of information system success

### 2.4.2 Components of an Information System

An information system brings together important components of people, technology (hardware and software), processes and data that collectively assists to collect, process, manage, analyze and distribute information<sup>66</sup>. Human capital or *people* are critical and key in the entire lifecycle of an information system, from design, development, launch, and maintenance of the system. People play different roles in the lifecycle of the system. They could be involved with the development, managing the system, being systems analysts, users of the system and contributors to the system. Each of them has an important role to play. Human resources are the first beneficiaries of the system as they are the users of the information system or the information it produces. The success or failure of an information system in many instances depends on people or users. The involvement of human elements in the development of information systems is pivotal. Content is generated and contributed to the system by its users. This approach is seen as encouraging collaboration, facilitating interactivity, and encouraging information sharing.<sup>67</sup> *Technology* includes hardware, software and telecommunications, which form integral parts of an information system. Computer

<sup>65</sup> Mason, R.O. 1978. *Information and management*

<sup>66</sup> Wallace, P. 2013. *Information systems in organizations: people, technology and processes*

<sup>67</sup> Wallace, P. 2013. *Information systems in organizations: People, technology and processes*

systems and computer peripherals such as keyboards, printers, screens and related devices together with operating system programs and operating manuals makes up hardware and software resources. Information systems are at times designed to reduce labour by developing *processes* to assist employees in achieving tasks. The processes in this instance are the instructions on what should be done, how it should be done and when. *Data* are the nucleus of an information system as raw facts can be represented into meaningful data. In an information system, data are converted into digital format, read by a computer system to make sense to a user. The concept of data and its importance in the development of information system has been discussed at length at the beginning of this chapter.

### **2.4.3 Classifications of information systems**

Information systems are linked with different types of people within an organization according to hierarchy and job roles. Classifications of different levels of information systems can be arranged broadly as either operations or management information systems<sup>68</sup> as depicted in figure 5 below. The main purpose of the different systems highlights the different tasks and responsibilities performed within an organization. The two major categories of information systems in an organization are Operations Support Systems that support business operations and Management Support Systems that support managerial decision making<sup>69</sup>. These major systems are constituted by an assortment of information system dedicated to a myriad of activities within an organization. Examples of these systems are depicted in figure 5 below. The list is not exhaustive; these are some of the examples cited in the literature.

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<sup>68</sup> O'Brien, J.A and Marakas, G. M. 2007. *Enterprise information systems*

<sup>69</sup> O'Brien, J.A and Marakas, G.M. 2007. *Enterprise information systems*

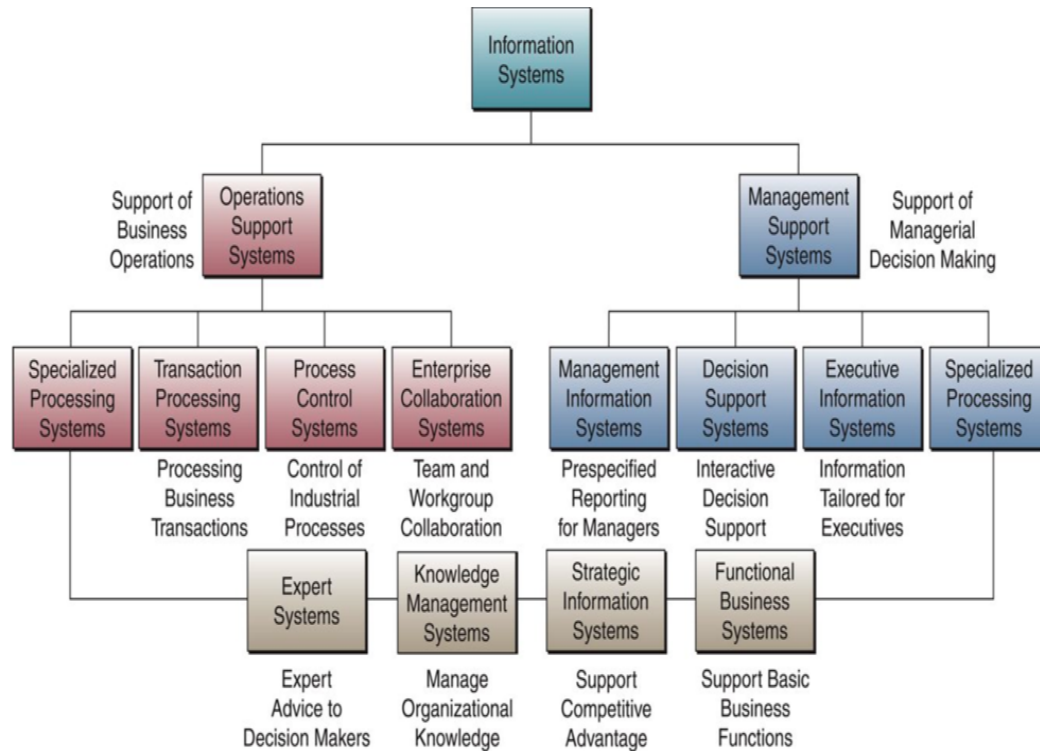


Fig 5: source: O'Brien and Marakas, "classifications of information systems"

## 2.4.4 Operations Support systems

### 2.4.4.1 Transaction processing systems

Transaction processing systems (TPS) assist with processing data produced from organizational business transactions. These types of systems process transactions in large number and in real time as data are processed at that point shortly after a transaction is performed. TPS are normally used for low-level activities performed by employees at the lower level of an organization. They provide key data which is important in supporting management of operations and produce information that is beneficial for other systems. Examples of such transactions are inventory processing, the point of sale and accounting systems.

#### **2.4.4.2 Process control systems**

Process control systems monitor and control organizational processes and make adjustments immediately.<sup>70</sup> These systems assist in lowering operations and maintenance costs throughout the entire lifecycle of a system.

#### **2.4.4.3 Enterprise collaboration system**

Enterprise collaboration systems support activities that are meant to enhance the teamwork, enterprise communication and collaboration<sup>71</sup>. They include applications such as office automation where employees involved with projects may collaborate using electronic mails and video conferencing for meetings.

### **2.4.5 Management support systems**

Information systems that focus on providing information and support to management for operative decision making are management support systems (MSS). These systems are constituted by Management Information Systems (MIS), decision support systems and executive information that will be discussed briefly below.

#### **2.4.5.1 Management Information Systems**

A management information system (MIS) is a computerized database that produces reports on daily operations performed by different levels of management in an organization. An MIS is defined as a three-resource system (people, information and technology) required for effective management in an organization<sup>72</sup>. Data feeding into an MIS is received from different units within an organization. MIS is a collection of information management methods involving computer automation that improves the quality and efficiency of business operations and decision making by management.<sup>73</sup>

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<sup>70</sup> O'Brien, J.A and Marakas, G. M. 2007. *Enterprise information systems*

<sup>71</sup> O'Brien, J.A and Marakas, G. M. 2007. *Enterprise information systems*

<sup>72</sup> <https://www.techopedia.com/definition/8240/management-information-system-mis> Accessed 12 September 2016

<sup>73</sup> <https://www.techopedia.com/definition/8240/management-information-system-mis>. Accessed 12 September 2016

#### **2.4.5.2 Decision support systems**

Decision support systems play an important role of providing managers with ad hoc support to make decisions. DSS systems are flexible, adaptable and assist human capital within organizations with forecasting and the information from a decision support system may be presented in graphs.

#### **2.4.5.3 Executive Information systems**

These systems deliver critical information from a variety of internal and external sources in easy to use presentations to executive and management levels.<sup>74</sup> The executive information system provides easy access to significant data which will assist top or senior executives to achieve strategic goals. This is a very useful system to monitor performance, identify opportunities and challenges within an organization.

#### **2.4.5.4 Expert systems**

An expert system impersonates the reasoning of a human being. This system feeds on the knowledge deposited by experts on a regular basis. Expert systems are closely linked to artificial intelligence system with a capability to mimic human intelligence such as drawing, learning, reasoning and drawing conclusions from incomplete information.<sup>75</sup>

#### **2.4.5.5 Knowledge Management Systems (KMS)**

Knowledge management systems (KMS) support the creation, organization and dissemination of organizational knowledge to employees. An intranet, which is the focal point of this study, can also be referred to as a KMS as it displays the characteristics of a KMS. KMS are the integration of technologies and mechanisms that are developed to support four knowledge management processes, namely; knowledge application systems, knowledge sharing systems, knowledge discovery systems and knowledge capture systems<sup>76</sup>

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<sup>74</sup> O'Brien, J.A. 2007. *Enterprise information systems*

<sup>75</sup> Wallace, P. 2013. *Information systems in organizations: People, technology and processes*

<sup>76</sup> Becerra-Fernandez, I and Sabherwal, R. 2010. *Knowledge management: systems and processes*

#### **2.4.5.6 Strategic Information Systems**

Organizations develop short and long-term strategic plans for the sole purpose of achieving competitive advantage in the market by providing good services to their clients. In addition, organizations rely on strategic information systems to gain a strategic advantage over their competitors.

#### **2.4.5.7 Functional Business Systems**

Functional business system (FBS) supports basic operations functions in an organization. Depending on the type of an organization, the functions could include human resources, marketing, productions, finance and accounting. A functional business system incorporates a variety of systems (transaction processing, decision support system, management information, process control system).

## **2.5 INFORMATION SYSTEMS MODELS**

### **2.5.1 Technology Acceptance Model**

Davis designed the original Technology Acceptance model (TAM) in 1989. The model underwent some expansions over the years. The underlying basics of TAM are the manner in which people react towards using technology, the intention to use the information technology, and the actual usage of the information technology<sup>77</sup>. The TAM is commonly used to explain the association between the current usage, future usage and perceived usefulness (PE) and perceived ease of use (PEU). The variable of perceived usefulness refers to the extent to which an individual believes that using a particular system would enhance his or her job performance.<sup>78</sup> In contrary to PE, PEU refers to the extent to which an individual believes that using a specific system would be free of effort and very simple to use and operate. The theoretical base of the TAM lies in the theory of reasoned action (TRA) which is a model of human behaviour and suggests that human reasoning comes as a result of beliefs and evaluations to the expansion of an attitude towards performing behaviour<sup>79</sup>. In relation to the

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<sup>77</sup> Davis, F.D. Sep 1989. *MIS Quarterly*

<sup>78</sup> Davis, F.D. Sep 1989. *MIS Quarterly*

<sup>79</sup> Tang, Ling-Lang, Hsu, Che-Han, Kiet, O.C. 2014. *International Journal of Innovation in Management*



intranet, the attitude that people have towards such a system will influence their engagement with the system or their perception that the system is easy to use. The TAM contributed to the understanding of the usage behaviours in relation to information systems.

However, the contribution of TAM does not take into account the importance of social influences in the adoption and utilization of information systems which ultimately led to the introduction of the variable “attitude” to the original TAM model<sup>80</sup>. This argument was expanded further by distinguishing the three different processes of social influence affecting human behaviour: Compliance, where an individual uses a system due to the expected rewards; identification, when an individual uses a system due to association with certain individuals; and internalization, when an individual uses a system because it resonates with their value system. The addition of the social influences variable gave birth to the refined model of the Technology Acceptance Model 2 which was developed by Venkatesh and Davis in 2000. The newly refined model emphasizes the importance of softer social issues that influences the use or non-use of a technological system.

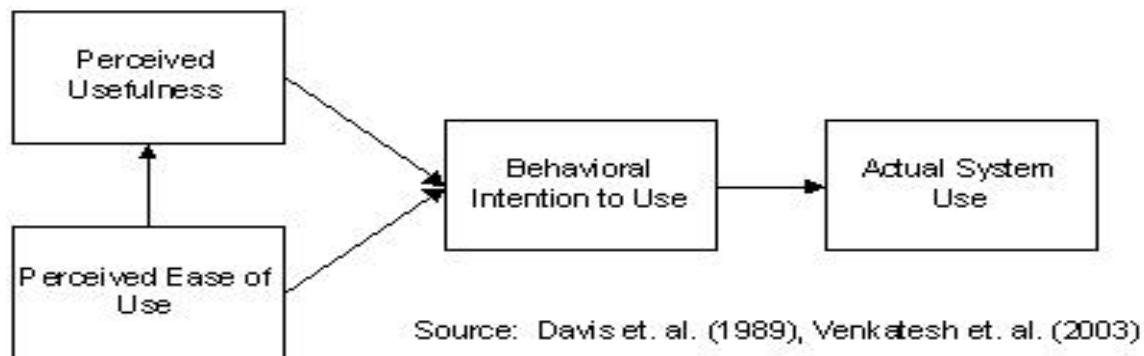


Fig 6: Technology Acceptance Model, Davis et al. (1989), Venkatesh et al. (2003)

### 2.5.2. Technology Acceptance Model 2

The inclusion of variables such as voluntariness, experience, subjective norm, image, job relevance, output quality; result demonstrability saw a refinement of the Technology

<sup>80</sup> Mahorta, Y, Galletta, D. 1999. *In proceedings of Hawaii international conference on system sciences*

Acceptance Model in 2000 which was coined TAM2 by Venkatesh & Davis<sup>81</sup>.

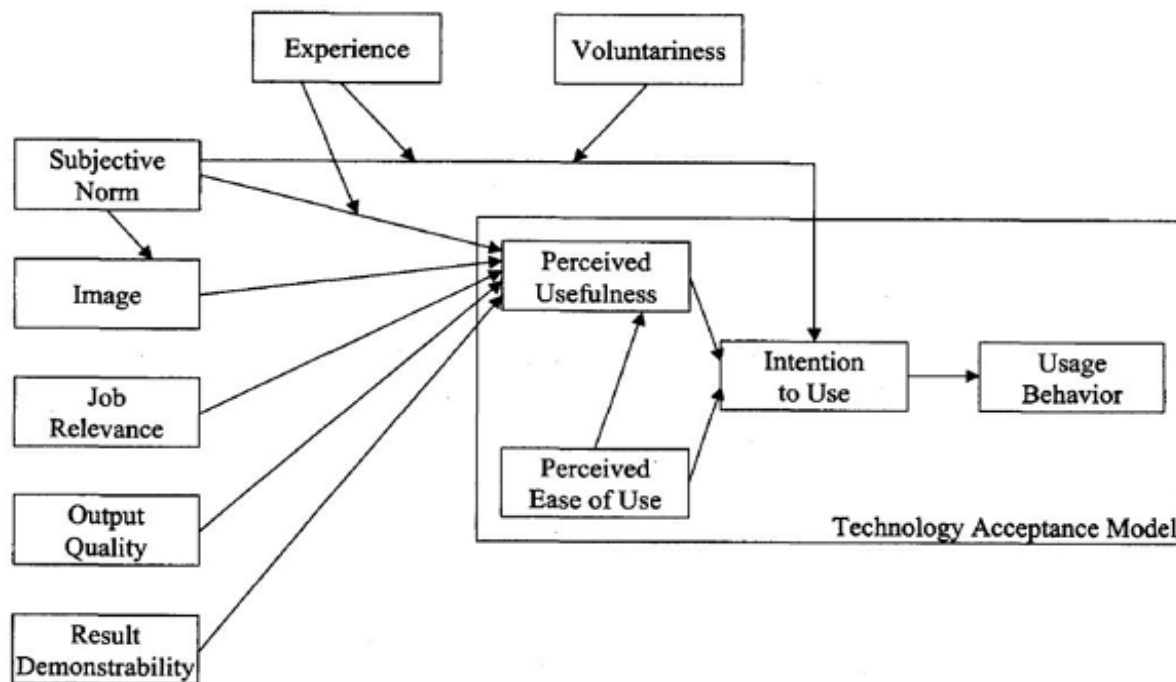


Fig 7: Technology Acceptance Model 2 (Venkatesh and Davis 2000)

The added constructs are perceived as having an influence on how people perceive the usefulness of the system, the perceived ease of use which influences their intention to use the system or not, and the overall behaviour in relation to the usage of the system.

### 2.5.3 Technology Acceptance Model 3

The Technology Acceptance Model (TAM) 3 depicted new relationships between the different variables. The model suggested that improved hands on experience of a system user would have an impact on the perceived usefulness and the perceived ease of use of the intranet. The more information the user have or the more experienced the user is in using the intranet, the likelihood that such a user will find it easy to navigate the intranet. An increase in experience to use the system will see a reduction in experiencing computer anxiety. The last relationship on TAM3 is that of perceived ease of use of behavioural intention, which is moderated by experience. This principle lies in the fact that individuals who are more knowledgeable about how to use the intranet will place less significance on perceived ease of use and form their behavioural intentions to use the intranet. Figure 8 depicts the new

<sup>81</sup> Venkatesh, V and Davis, F.D. 2000. *Management Science*

relationships extended from the TAM 2. Venkatesh and Bala's<sup>82</sup> proposed model considered the issue of decision making by managers as having an impact on more acceptance and actual utilization of the intranet. The support of a system by managers in an organization promotes usage of such a system.

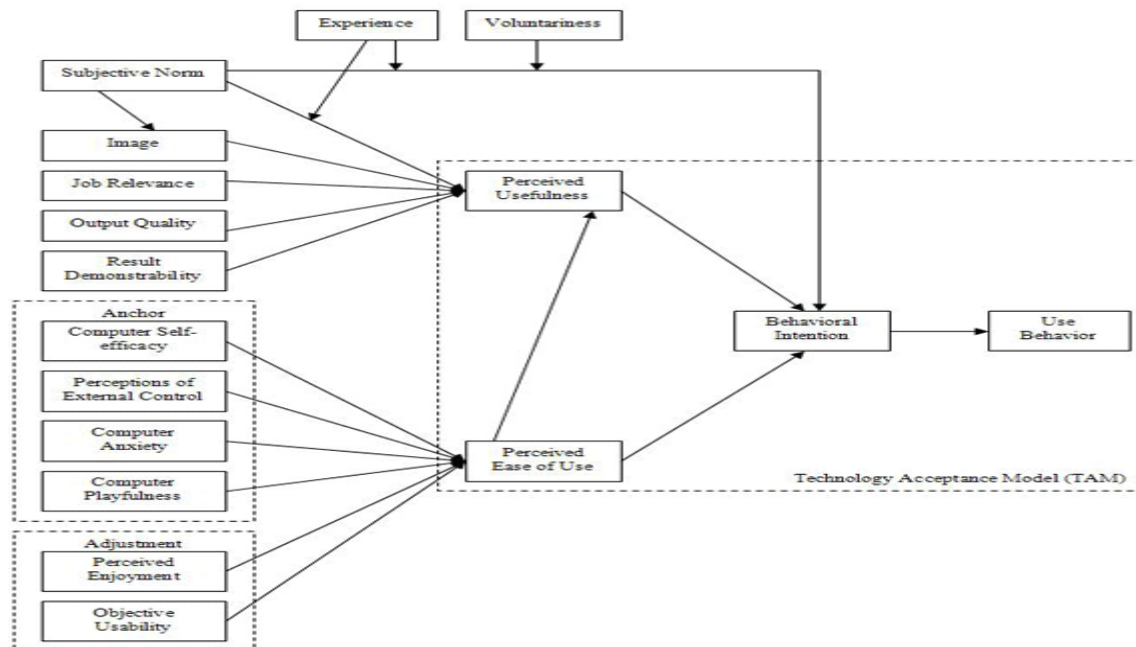


Fig 8: Technology Acceptance Model 3. (Venkatesh and Bala 2008)

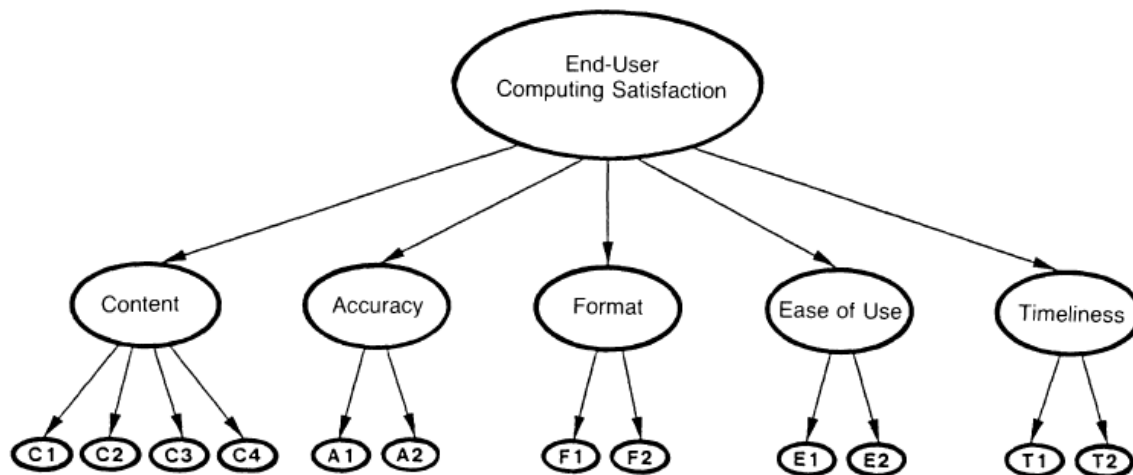
#### 2.5.4 End user computing satisfaction Model

Measuring end-user computing satisfaction has been growing at a steady rate as more empirical research is conducted on factors influencing the success of end user computing. The End-User Computing Satisfaction (EUCS) model was developed to measure the satisfaction of users who interacts with the system or application directly. Typically, a user will interact with the system through intervention from an analyst or program. The EUCS model puts a user in control. The principle of end user computing is that a person who interacts and harvests information or data from the system has an added responsibility to develop it. User information satisfaction emphasizes the measurement of the primary user's role of overall information satisfaction. The secondary role of the end user computing depends on an application's ease of use. The argument raised by Doll and Torkzadeh<sup>83</sup> is that

<sup>82</sup> Venkatesh, V. Bala. H. 2008. *Decision sciences*

<sup>83</sup> Doll, W.J. Torkzadeh.G. 1998. *Information and Management*

if end users find an application easy to use and navigate, they may be encouraged to develop advanced skills to use the system and realize the competencies offered by the system. The fact that the system is easy to use may enhance efficiency or enable decision makers to inspect more substitutes. Figure 9 illustrates the EUCS model which includes 5-factor analysis.



#### **CONTENT**

- C1: Does the system provide the precise information you need?
- C2: Does the information content meet your needs?
- C3: Does the system provide reports that seem to be just about exactly what you need?
- C4: Does the system provide sufficient information?

#### **ACCURACY**

- A1: Is the system accurate?
- A2: Are you satisfied with the accuracy of the system?

#### **FORMAT**

- F1: Do you think the output is presented in a useful format?
- F2: Is the information clear?

#### **EASE OF USE**

- E1: Is the system user friendly?
- E2: Is the system easy to use?

#### **TIMELINESS**

- T1: Do you get the information you need in time?
- T2: Does the system provide up-to-date information?

Fig 9: A Model for measuring End-user Computing Satisfaction (Doll and Torkzadeh, 1988)

### **2.5.5 Model of User Satisfaction**

Seddon and Kiew<sup>84</sup> modified the DeLone and McLean's information systems' success and focused only on four dimensions, namely; system quality, information quality, use and user satisfaction. The modified model replaced use with usefulness, added a new dimension of the

<sup>84</sup> Seddon, P.B. Kiew, Min-Yen. 1996. *Australasian Journal of Information Systems*

importance of the system that clarifies usefulness and user satisfaction as perceived by users and further added a single way connection as they argued that usefulness causes user satisfaction and not the other way round. The model's argument about replacing use with usefulness is that merely using the system is not necessarily tantamount to the system being usefulness. In the same breath, not using the system does not necessarily mean that the system is not useful.

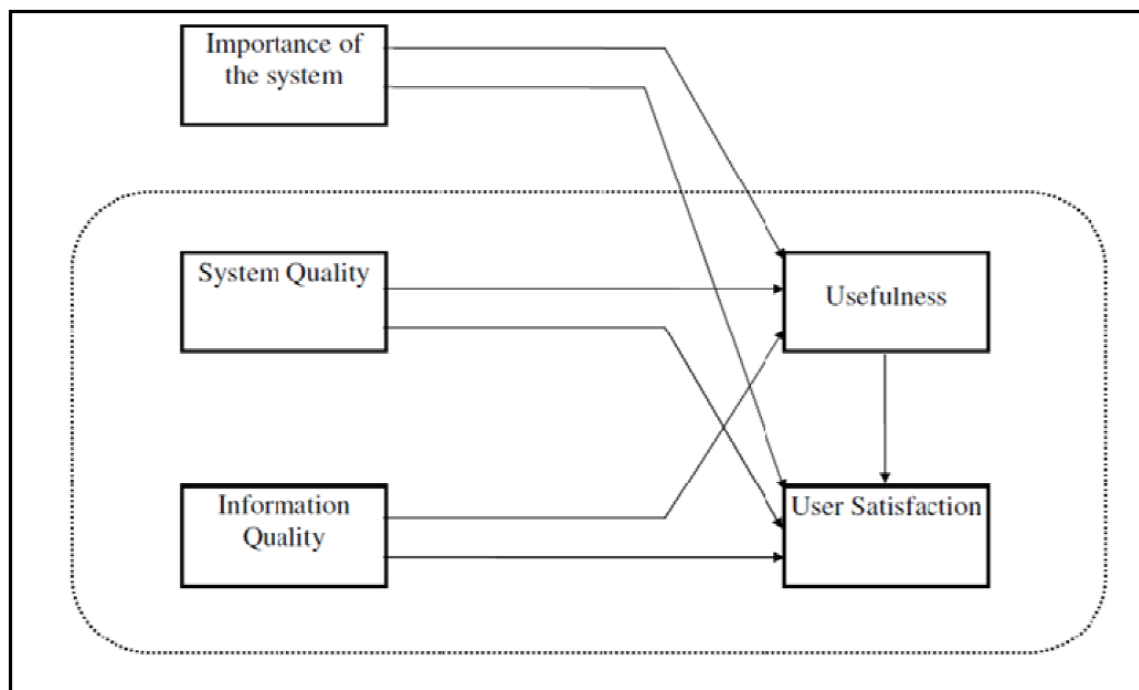


Fig 10: Seddon and Kiew's model of user satisfaction 1996

### 2.5.6 Gable et al (IS impact) Model

Previous authors who attempted to measure information systems success raised several concerns. One of the concerns was a poor measurement that could be because the measurement is incomplete or not suitable. A model to measure IS-impact was developed.<sup>85</sup> The IS-impact of an information system is a measure at a point in time of the stream of net benefits from the information system at a time and as anticipated and as perceived by key

<sup>85</sup> Gable, G. G. Sedera, D. Chan, T. 2008. *Proceedings Twenty-fourth International conference on Information systems*

users of such a system<sup>86</sup>. The model is one of those based on the DeLone and McLean's model and the purpose of its development was an attempt to overcome issues of uncertainties discovered in related past research. The model contains four dimensions in two halves, namely; impact which measures the impact of the system to date, quality that measures future impacts of the information system, individual and organization half, and lastly the system information half as depicted in figure 11 below.

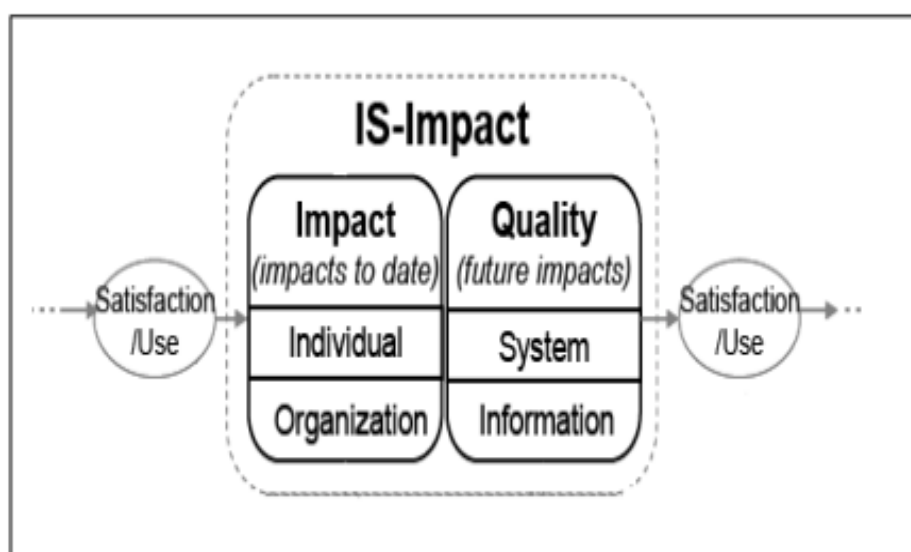


Fig 11: Gable et al.'s IS-impact model 2008

### 2.5.7 DeLone and McLean' Information systems model

The theory undertaken by DeLone and McLean on information systems success is that it seeks to offer a total and comprehensive understanding of IS success. The theory does this by identifying, describing, and explaining the associations among the most critical dimensions of success along which information systems are normally evaluated.<sup>87</sup>

#### 2.5.7.1 The 1992 DeLone and McLean's Information systems success model

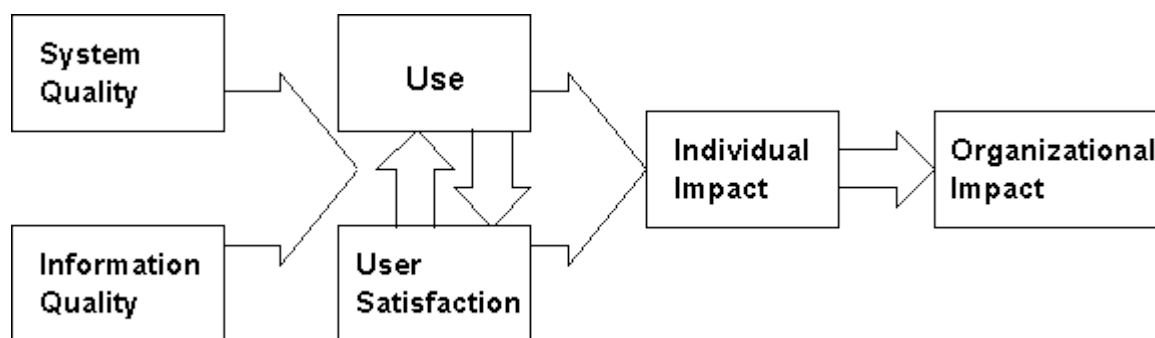
The initial model that was published in 1992 was developed because of a collection of previous studies conducted on information systems success. The usage of the model has

<sup>86</sup> Gable, G.G. Sedera, D. Chan, T. 2008. *Proceedings Twenty-fourth International conference on Information systems*

<sup>87</sup> DeLone and McLean. 2003. *Journal of Management Information systems*

advantages as it can be used to measure the success of the entire information system or only a single subsystem from the entire system. The dimensions contained in the original model are as follows:

- System quality: which measures information processing system;
- Information quality: which measures information system output;
- Use: users' usage of an information system;
- User satisfaction: the use of the productivity of an information system;
- Individual impact: measuring the impact of information system on an individual's behaviour; and
- Organisational impact: measuring the impact of information systems on organisational performance.



*Fig 12: The DeLone and McLean IS Success Model from 1992*

#### **2.5.7.2 The 2003 DeLone and McLean's Information system's success model**

The updated model published in 2003, depicted on Figure 13 below, described the relationship between the six dimensions. In this study, the DeLone and McLean's model was used to measure the success of information systems in an ODL environment as information system challenges cut across industries and organizations. The relationships between the different variables will be tested to examine the determinants and their influences on the

dimensions of IS success. According to Heo and Han<sup>88</sup>, DeLone and McLean have been cited in over 300 publications worldwide. This proves that their model is reliable and successful. The updated DeLone and McLean's model identified six interdependent variables used to measure information systems success, namely; system quality, information quality, service quality, use or intention to use, user satisfaction, and net benefits.

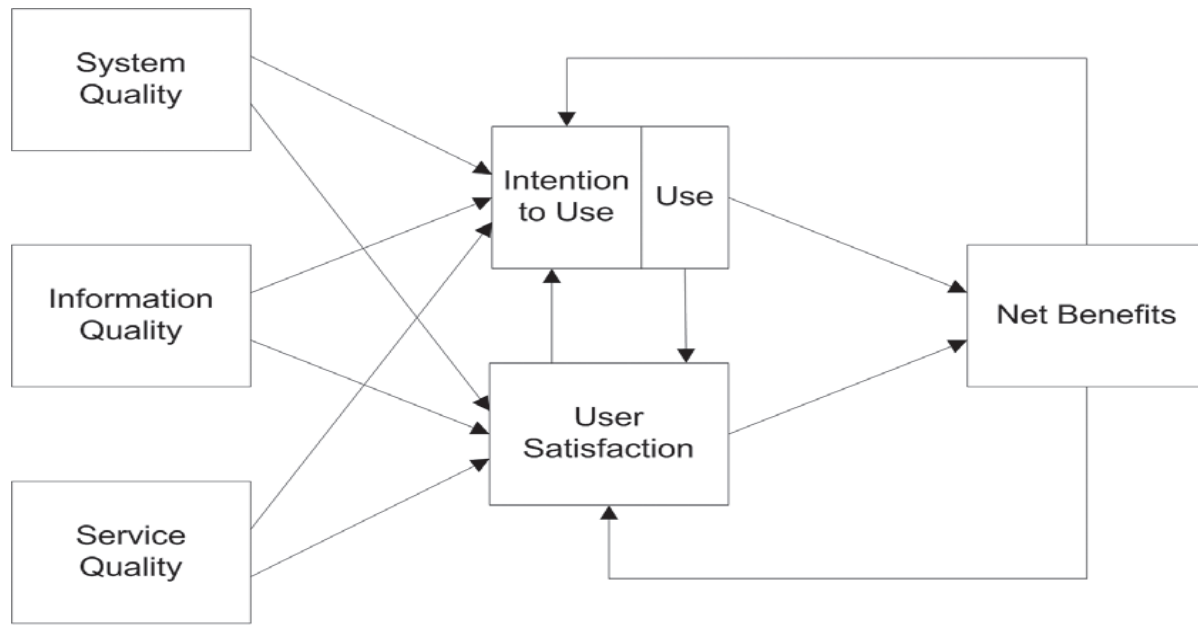


Fig 13: Updated DeLone and McLean IS Success model

### Information quality

Information on its own is useful. However, with the increase in the quantity of the information produced, the quality of the same information becomes very crucial. Information quality is one concept that has been thoroughly researched in the fields of information science and information systems<sup>89</sup>. The definitions of information quality depend on how the concept is used as there is no generally agreed upon definition from different authors. Prior discussions on the issue of information quality focused on the underlying attributes such as accuracy, completeness, presentation and objectivity. Emphasis is put on the user or individual's judgment of how good and useful the information is<sup>90</sup>. The perception of users or

<sup>88</sup> Heo, J, Han, I 2003. *Journal of Information and management*

<sup>89</sup> Arazy, O, Kopak, R. 2011. *Journal of the association for Information Science and Technology*

<sup>90</sup> Hilligoss, B, Rieh, S.Y. 2008. *Information processing and Management*



information consumers on the quality of information differs and it is also viewed in the order of importance. According to Wang and Strong,<sup>91</sup> information quality is defined as the fitness for use of information. The quality of the information residing in an information system is determined by whether it is fit for the intended purpose or not. These sentiments are shared by Eppler<sup>92</sup> who further explored the duality of the concept by defining it as the point at which the information meets the expectations of a user. The definition of *fitness for use* will be used due to its relevance to this particular research. The process of ensuring that the information is of good quality is beneficial for organizations. Information quality is a very important component that is seen to encourage user satisfaction. Accuracy, completeness, relevancy, timeliness and format of the information are the most recognizable components of information quality<sup>93</sup>.

Accuracy as an information quality component relates to the correctness of the information provided by an information system and the impact it has on user satisfaction. Most importantly, the information residing in an information system should be precise to ensure that a user is able to make correct decisions or complete tasks. Information completeness is equally important as it demonstrates the comprehensiveness of the information located in an information system. Information needs to be relevant at all times as this shows that the information required by the users is exactly the same as what the information system provides. Another important element of information quality is timeliness, which reflects that the information in the information system is up to date.

## **System quality**

System's quality is the anticipated characteristics of a particular system to create information that should be utilized by users and decision makers.<sup>94</sup> The quality measure of a system plays a significant role in the internal efficiency and has strategic benefits in an organization. Most

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<sup>91</sup> Wang, R.Y and Strong, D.M. 1996. *Journal of Management Information Systems*

<sup>92</sup> Eppler, M.J. 2006. *Managing Information quality: increasing the value of information in knowledge-intensive products and processes*

<sup>93</sup> Petter, S, DeLone, W, McLean, E. 2008. *European Journal of Information systems*

<sup>94</sup> DeLone, W and McLean, E. 2003. *Journal of Management Information System*

researchers in the information system field measured system quality according to the accessibility of the system, accuracy of the data, ease of use, response time, reliability, contents of a database, response time and the extent to which the system is reliable. Systems quality can also be measured according to the extent to which users find: the system to be reliable, easy to learn and use and easy to understand the interface of the system. System quality is concerned with the overall performance of a system.

### **Service quality**

Quality issues in organizations are becoming strategic issues in management and decision making. Service quality can be measured according to the service performance and the level of the expected service. SERVQUAL is an instrument that was developed to measure service quality in the marketing field. The instrument focused on measuring service quality of Information Technology Departments and neglected to measure the user expectations and their perceptions of the IT Department. Researchers who evaluated the DeLone and McLean's model suggested that service quality should be included in the model.<sup>95</sup>

Jiang et al validated the suggestion to add the service quality dimension to the DeLone and McLean's model. The sentiments are shared by Pitt et al. arguing that the research on IS success is product focused and not on measuring service. The focus was mainly on measuring the information technology applications and not on the actual service. According to Petter et al.,<sup>96</sup> literature revealed four main dimensions of service quality, namely; assurance, responsiveness empathy and reliability Assurance relates to how a user perceived knowledge of being able to solve own problems. Responsiveness reflects the fast responses provided by the system when prompted to do so. An empathetic system provides a service according to the user's needs and a reliable system is dependable at all times.

### **Intention to use/Use**

The adoption of Use as a means to measure success or effectiveness requires consideration and a response to the following questions; to what extent is the system used; what is the

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<sup>95</sup> Pitt, L.F, Watson, R.T, Kavan, C.B. 1995. *MIS Quarterly*

<sup>96</sup> Petter, S, DeLone, W, McLean, E. 2008. *European Journal of Information systems*

nature and quality of the system being used; and the lastly is the system appropriate to use? The full functionalities of the system should be interrogated to ensure that it is used for the intended purpose. In one research study, intranet effectiveness usage was evaluated from the dimensions of decision support and work integration.<sup>97</sup> Decision support is defined as the extent to which the intranet can assist an individual or an organization in proper decision-making processes and work integration is the extent that the intranet is used to coordinate work activities and assist in collaborative efforts between staff and management. Certain constructs of the IS success model were evaluated by another author and highlighted that usefulness is not used as stated on the DeLone and McLean's model.<sup>98</sup> The concept of usefulness is viewed the same way at how the TAM views perceived usefulness. DeLone and McLean maintain that the construct of use should still be maintained as an appropriate measure and not usefulness.

### **User satisfaction**

User satisfaction refers to user's attitude towards an information system. Satisfaction in any given condition is how an individual feel or the kind of attitude displayed towards varied factors affecting that particular condition or situation. The attitudes displayed by users as they interact with the intranet are pivotal in measuring its success or failure to satisfy the expected results. Measuring user attitudes would eliminate any element of preference when measuring the effectiveness of a system.<sup>99</sup> However, Davis et al., who believe that user satisfaction is a weak predictor of system usage, do not share the same sentiments. This is due to the fact that beliefs and attitudes about items such as information systems are poor predictors of behaviours. The TAM model predicted usage by connecting behaviours to attitudes and beliefs (ease of use and usefulness). The relationship between user participation and user satisfaction has been a discussion point for some time.<sup>100</sup> The contention is that involvement or participation of a user influences their satisfaction with the system. User participation covers many factors, namely; assessment of user information, providing expertise support,

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<sup>97</sup> Hussein, R, Selamat, M.H., Karim, N.S.A. 2007. *Business Process Management Journal*

<sup>98</sup> Seddon, P.B. 1996. *Information Systems research*

<sup>99</sup> Özkan, S. Hackney, R, Bilgen, S. 2007. *Journal of Enterprise Information Management*

<sup>100</sup> Kappel, L.A, McLean, E.R. 1995. *Database advances*

evading development of improper and insignificant features, developing genuine expectations and fostering system ownership by users. The research on the factors has been marred with a more confusion disputed by many researchers. The confusion is caused by flawed methodology and poorly grounded theory. Doll and Torkzadeh<sup>101</sup>, Klenke<sup>102</sup>, Tait and Vessey<sup>103</sup> argue that there is huge confusion between the construct of user involvement, participation and influence.

### **Net benefits**

DeLone and McLean's 1992 model included individual as well as organizational impact which addressed the immediate user. The reviewed DeLone and McLean's 2003 model replaced the two dimensions with net benefit to measure the effectiveness of a system beyond the immediate user. The question is whether the net benefits are for an organization or for an individual. The collapse of the individual impact and the organization impact from the earlier model of DeLone and McLean to the updated one does not provide a solution to the question. The constructs of user satisfaction, use and net benefits are interlinked in the sense that the anticipated net benefit provided by the system encourages the use of the system and therefore user satisfaction will be realised.<sup>104</sup> In the updated model, the associations of the three constructs are hypothesized as that high use, leads to user satisfaction that leads to positive net benefits. There is a link between system quality and information quality and net benefits measurements. More research needs to be conducted to measure the Net benefit construct of the model. The user satisfaction and the intention to use constructs are not adequate substitutes for measuring net benefits.<sup>105</sup>

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<sup>101</sup> Doll, W.J, Torkzadeh, G. 1998. *Information and management*

<sup>102</sup> Klenke, K. 1992. *Construct measurement in management information systems: a review and critique of user satisfaction and user involvement instruments*

<sup>103</sup> Tait, P, Vessey, I. 1988. *MIS Quarterly*

<sup>104</sup> DeLone, W.H, McLean, E.R. 2003. *Journal of Management information systems*

<sup>105</sup> Yuthas, K, Young S.T. 1998. *Materials matters: Assessing the effectiveness of materials management IS Information Management.*

## **2.6 SUMMARY OF LITERATURE REVIEW**

Chapter two provided a review of the literature on major themes of the study namely: the intranet, knowledge sharing and a more detailed discussion on the different models relevant to the study. Definitions of key concepts assist in providing background information on issues to be addressed on the study. An in-depth discussion on Information systems (IS) models laid a firm foundation for the study. The major thematic points covered on this chapter provided a good basis for the construction of the data collection instrument to address the objectives of the study. The next Chapter will encompass the research methodology process followed in an attempt to respond to research questions.

# Chapter 3

## *Research methodology and data collection*

### 3.1 INTRODUCTION

Literature review on knowledge sharing, the intranet and information systems success was discussed in Chapter 2. In this chapter, the procedure selected to address the research questions and the research methodologies selected will be discussed. The chapter will further present a discussion on the research paradigm, research design, selected instrument used to collect data and how the ethical consideration matters were addressed and taken into account. In a quest to seek solutions to the questions raised by the researcher, new knowledge develops which builds on existing knowledge and adding to developed theories, paradigms and worldviews on the phenomenon under investigation. Though the objective and focus of this research is not on discussing theories, paradigms and worldviews, it is however important to provide a synopsis of such as they influence the research practice.

### 3.2 RESEARCH PARADIGM

Worldviews, paradigms and theories are used interchangeably in the literature but they actually refer to the same thing. Some authors define them as a basic set of beliefs that guide action,<sup>106</sup> others refer to the worldview as paradigms,<sup>107</sup> and as broadly conceived research methodologies<sup>108</sup>. The researcher will use the term research paradigm to outline the approach for this research which will lead to the methodological approach used in this study.

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<sup>106</sup> Creswell, J. 2009. *Research design: qualitative, quantitative and mixed methods approaches*

<sup>107</sup> Lincoln, Y.S, Guba, E.G. 2000. *Handbook of qualitative research*

<sup>108</sup> Neuman, W.L. 2000. *Social research methods: Qualitative and quantitative approaches*

The next section will discuss the four main research paradigms identified in the literature, namely; positivism, postpositivism, constructivism, and advocacy or participatory and pragmatism.<sup>109</sup>

### 3.2.1 Pragmatism

Pragmatists strongly believe that a researcher should have the freedom to choose between different methods, procedures and techniques. Pragmatism applies mixed method research and different methods approaches to collect and analyse data. This study is empirical in nature and seeks to measure the dependent and independent variable of the DeLone and McLean constructs to assess the effectiveness of an intranet, which will involve testing relationships between principal constructs of the model. There is no alignment to the pragmatism point of view as the relevant method of inquiry is quantitative and not mixed methods. The researcher does not intend to engage in interviews or any qualitative methods of soliciting responses to the questionnaire.

### 3.2.2 Constructivism

On the other hand, the proponents of the constructivist paradigm emphasize the importance of meaning emerging from data and the interpretations of social actors to understand the world in which they live. The views and experiences of participants are taken into consideration through engagements with the researcher. The paradigm uses the qualitative approach in a form of interviews to understand the feelings of participants in the world of work in which they live.<sup>110</sup>

### 3.2.3 Participatory paradigm

Another school of thought or paradigm embraced by some researchers is the advocacy and participatory paradigm which is of the view that research inquiry should be interweaved with an agenda to assist marginalised people and should address issues of empowerment, inequality and uplifting of communities.

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<sup>109</sup> Creswell, J. 2009. *Research design: qualitative, quantitative and mixed methods approach*

<sup>110</sup> Goduka, N. 2012. *From positivism to indigenous Science: a reflection on the worldviews, paradigms and philosophical assumptions*

### 3.2.4 Postpositivism

The philosophy underlying postpositivism is that it is imperative to detect causes that influence consequences in the world. The proponents of postpositivism challenge the belief of the absolute truth of knowledge and are of the view that as people we cannot be positive about our claims of knowledge especially when it comes to dealing with human behaviour and their actions. These researchers operate from a premise that a cause determines effects and outcomes.<sup>111</sup> The focus is on developing numeric measures to observe and study human behaviour using quantitative strategy of inquiry in a form of experiments and surveys. Post-positivists assume that an individual begins with a theory and collects data to support or reject that theory and make the following assumptions<sup>112</sup>:

- Absolute truth in knowledge can never be found and evidence found through conducting research is flawed;
- Research is about making claims which are later reworked to filter those that do not hold to make way for those that are more strongly defensible;
- Evidence and data gathered through the research process shape knowledge;
- Relevant and true statements are developed to describe the causal relationships of interest; and
- Researchers need to be objective and eliminate biases, standards of validity and reliability are key in quantitative research.

### 3.2.5. Positivism

Positivism paradigm is based on the premise that true knowledge is based on the experience of senses and can be obtained by observation and experiment. In this view, reality exists independently of the researcher. Therefore, reality is measurable using independent and dependent variables, quantitative data, mathematical proportions, inferential statistics and experimental controls<sup>113</sup>. Blaikie<sup>114</sup> as cited by Goduka<sup>115</sup> argues that positivism is based

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<sup>111</sup> Creswell, J.W. 2009. *Research design: qualitative, quantitative and mixed methods approaches*

<sup>112</sup> Phillips, D.C, Burbules, N.C. 2000. *Postpositivism and educational research*

<sup>113</sup> Lee, A.S, Hubona, G.S. 2009. *Management Information systems quarterly*

<sup>114</sup> Blaikie, N. 2010. *Designing social research: the logic of anticipation*

<sup>115</sup> Goduka, N. 2012. *Africa Insight*.



upon values of reason, truth and validity focusing purely on facts gathered through experience and observation and measured empirically using quantitative methods. The positivism paradigm is affiliated to the quantitative research approach which has been used in this study. This study seeks to respond to the research question of assessing the effectiveness of intranet as a knowledge sharing tool by collecting and analyzing statistical data. The theory building of this study follows the positivism paradigm as it sorts to evaluate an intranet by measuring the dimensions of information quality, service quality, system quality, use, user satisfaction and net benefits to try and respond to the research question, that is, How effective an intranet is as a knowledge sharing tool in ODL Library.

### **3.3 RESEARCH DESIGN**

A research design is a clear plan of how a researcher will execute the research process in an attempt to answer the research question.<sup>116</sup> The focus of the research design is to rationalize the research and the end product, and further respond to the research question or the research problem to be solved. Therefore, the research design can either be qualitative, quantitative or mixed.<sup>117</sup> The plan provides details regarding the collection of data, as well as an instrument used to collect data. Quantitative research approach in a form of a survey research was used to guide the research procedure. The purpose of using survey research for this study is to try to generalize from a sample to a population to extrapolate the characteristics, behaviour and attitude of the population under study. Given the uniqueness of the case, sampling was irrelevant as all the respondents were surveyed.

### **3.4 RESEARCH METHODS**

In line with the aim of the study to measure the *effectiveness of intranet as knowledge sharing tool in an ODL Library*, a quantitative approach was adopted. The rationale for using quantitative research is that it relies extensively on numbers and statistics in the analysis of

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<sup>116</sup> Bless C, Higson-Smith, C, Sithole, S. L. 2013. *Fundamentals of social research methods: an African perspective*.

findings and numerical results can be expressed on graphs and charts.<sup>118</sup> Literature searches both electronically and in print form were conducted to perform the study and respond to research questions. Quantitative data was collected using a questionnaire containing structured statements and questions.

### 3.5 DATA COLLECTION INSTRUMENT

Data collection is one of the most significant components in the research process as the data gathered will assist in responding to the research questions. A questionnaire consisting of eight sections as outlined in figure 3.1 below was used to collect data from respondents. The researcher developed closed-ended questions to provide greater uniformity of responses and are easily processed than open-ended questions.<sup>119</sup>

**Table 1: Sections covered in the questionnaire**

SECTIONS	COMPONENTS
Section A	Demographic information
Section B	Intranet usage and knowledge sharing
Section C	Information quality
Section D	Service quality
Section E	Systems quality
Section F	User satisfaction
Section G	Use
Section H	Net benefits

The rationale behind using the DeLone and McLean constructs is to assess the current state of the intranet under study in comparison to the requirements of an effective information system as per the model. The questions posed to respondents are aimed at soliciting answers to the research question: *How effective an intranet is, as a knowledge sharing tool in an ODL*

<sup>118</sup> Bless C, Higson-Smith, C, Sithole, S.L. *Fundamentals of social research methods: an African perspective*.

<sup>119</sup> Babbie, E. 2010. *The practice of social research*

*Library.* In addition, the model measures the technological dimensions, namely; system quality, information quality and further measures the human dimension of measuring net benefits, service quality, intention to use, and user satisfaction, which are the focal points of this study.<sup>120</sup> No permission was requested to use the questions from the model as the information is in the public domain and freely available. Prior to the commencement of the process of collecting data, the data collection instrument had to undergo rigorous scrutiny from the Unisa Research Ethics Committee. This process is important to ensure the protection of participants, to develop trust with them, to promote the integrity of research and to guard against misconduct.<sup>121</sup> The ethical clearance process is necessary in any study that involves human subjects. In this particular case, the ethical clearance process was imperative as the subjects of study are employed in the same organization as the researcher.

An online survey tool (Survey Monkey) was used to distribute the questionnaire link to 260 library permanent staff members. Survey Monkey was suitable for this study as the sample size was too large and yields data comparable to those obtained through face-to-face.<sup>122</sup> Some social researchers argue that an online survey that is administered either through a website or via e-mail is not sufficiently representative as some of the respondents do not have access to internet or e-mail.<sup>123</sup> However, this is not the case in this study as all respondents have email access. Another argument raised on the administration of online surveys is that anonymity will be lost as respondents can be easily identified through their email addresses, especially since the researcher is also a permanent staff member of the library. The study is fully anonymised and no segments of the questionnaire could be linked back to a respondent. In addition, the respondents were only sent a link to the survey through a batch process. More discussions pertaining to ethical clearance issues will be outlined under the ethical clearance considerations section which forms part of this chapter.

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<sup>120</sup> Blaikie, N. 2010. *Designing social research*

<sup>121</sup> Cresswell, J.W. 2009. *Research design: qualitative, quantitative and mixed methods approaches*

<sup>122</sup> Leedy, P.D, Ormrod, J.E. 2010. *Practical research: planning and design*

<sup>123</sup> Babbie, E. 2010. *The practice of social research*

A five- points Likert scale was used to evaluate the different phenomena under investigation, where 1=*strongly disagree*; 2=*disagree*; 3= *neutral*; 4=*agree*; 5=*strongly*. Definition of concepts particularly on the DeLone and McLean's model was also provided to respondents to clarify any uncertainties and confusion regarding the meaning of concepts. Though questionnaires are popular in quantitative research, they have the downside of soliciting low response rates which was the case in this study. A response rate affects sample accuracy as the principle of determining a sample size is that the smaller the population, the larger the sampling ratio. For a smaller population of fewer than 500 the sampling ratio should be about 30% to enable the study to achieve accuracy.<sup>124</sup> A very low response rate of 42 responses was received with the first e-mail sent to respondents. There are a number of reasons that could have influenced a low response rate in this particular study. One being that, as much as the language used to design the questionnaire was clear and comprehensive; the length of the questionnaire could have negatively contributed to the low response rate. The fact that the researcher is an employee of the same institution where data was collected could have compromised issues of confidentiality, even though a confidentiality clause was included. Some of the respondents' might not have felt comfortable to respond accordingly for fear of being identified. Lack of feedback on similar surveys commissioned by different sources in the past could have impacted negatively on the response rate.

To mitigate these shortcomings a reminder was sent to respondents to complete the questionnaire, which yielded an improvement in responses as 82 responses were received on the second call. To mitigate the challenge of the length of the questionnaire, the respondents had an option of saving the questionnaire and working on it over a period of time as it was sent electronically. On the issue of confidentiality, any personal identifying fields were removed and the responses were received through a link. The results of the study will be made available on the Unisa Library repository after completion of the study.

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<sup>124</sup> Neuman, W.L. 2011. *Social research methods: qualitative and quantitative approaches*.

### 3.6 LOCATION OF ANALYSIS

The Unisa Library is part of the largest ODL institution in the southern hemisphere with a total staff component of 4500, servicing the needs of 315 000 students locally and globally<sup>125</sup>. The Unisa Library has a footprint in nine provinces in the country in a form of branch libraries and regional centres as well as one branch in Ethiopia. The geographical spread of the Unisa Library is meant to support university's vision, that is, *'Towards the African University in shaping futures in the service of humanity.'* The presence and visibility of the Unisa Library in different areas is meant to support the information needs of Unisa students who are unable to visit the Main Library in Pretoria in the Gauteng Province due to geographical distance barriers. The intranet as a knowledge sharing tool is intended to break down the geographic distance barriers and serves as a central point for all the library staff members in different regions and centres. Moreover, the intranet provides a virtual platform where work-related information and knowledge is accessed, shared and stored.

### 3.7 THE POPULATION

A population in a research study is composed of people on which the study is focused, and of which the researcher wants to define and draw some characteristics. The population of this study is composed of Unisa Library permanent staff members located in all branch libraries across South Africa and Ethiopia.<sup>126</sup> The population is heterogeneous consisting of library staff members with different characteristics, and occupying different positions. The researcher assumes that the interaction and the level of engagement of the population with the intranet will be varied as their level of interaction will also be influenced by a number of issues including age, number of years of service in the library, position title and level of study. The table 3.2 below depicts the different categories of the population. A list of all Unisa Library permanent staff members was drawn from the Oracle system that is used by the Unisa Human Resources Department to manage staff-related functions and activities. The

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<sup>125</sup> The statistical data was gathered from the University of South Africa's Institutional Information and Analysis Portal, accessed on 08 July 2015.

<sup>126</sup> Bless, C, Higson-Smith, C, Sithole, S.S. 2013. *Fundamentals of social research methods: an African perspective.*

only data field used from staff records retrieved on Oracle was e-mail addresses, which were used after permission was sought from appropriate structures within the university.

**Table 2: Categories of the population**

Categories	Total number
Library Executive Directors	2
Library Directors	3
Library Deputy Directors	5
Library Managers	10
Professional staff members	113
Support staff members	102

The library staff members under study are categorised according to different layers of position titles, which distinguishes them according to their remuneration differentiation, skills differences, performance and job complexity measured by the Peromnes job evaluation system, as determined by the University of South Africa.<sup>127</sup> A Peromnes job evaluation system is a point scoring method of evaluating jobs and is comprised of 8 factors namely; problem-solving, consequences of an error of judgements, the pressure of work, knowledge, job impact, comprehension, educational qualifications or intelligence level required and subsequent training.<sup>128</sup>

### 3.8 RELIABILITY AND VALIDITY

The measurement of identified constructs by the researcher should be evaluated to ensure that reliability and validity are intact. Reliability is the extent to which the observable measures

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<sup>127</sup> Conditions of employment agreement entered into between the University of South Africa and the National Health and Allied Workers Union concluded in 2007.

<sup>128</sup> Raju, R. 2014. Peromnes job evaluation method and its application to a library environment. *South African journal of Library and Information Science*

that represent a theoretical concept are accurate and stable over repeated observations.<sup>129</sup> Reliability sought to test whether the DeLone and McLean's model will yield the same results that were tested over time. The questions for the study were designed from the themes of the constructs of the DeLone and McLean's model. The model has been used repeatedly and though the different authors used the constructs to test different relationships within the model, the results remained the same. The variables of the model are still considered relevant by different authors as they continue to be tested by many researchers.<sup>130</sup>

Validity refers to the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration.<sup>131</sup> The instrument used to collect data is intended to measure the constructs of DeLone and McLean's model which focuses on the content of the intranet and not the attitudes of the staff members towards the intranet. The validity and reliability of the research instrument is tested to ensure that they reflect the event itself and not the researcher's preferences.

### **3.9 DATA ANALYSIS**

Data is analysed to describe its constituent elements, to explain how it works and to interpret what it means.<sup>132</sup> A questionnaire contained 21 variables comprising of demographic information, intranet and knowledge sharing as well as seven thematic points in the DeLone and McLean's model. A statistical software package (SPSS) was used to analyse exploratory data where all variables in the questionnaire were subjected to descriptive analysis using frequency tables and graphs. In addition, Cronbach Alpha was used to establish the internal reliability of the underlying variables of the DeLone and McLean's constructs and the reliability of the scale; Pearson's chi-square was used to establish the significance of an association between two variables from the D& M's model.

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<sup>129</sup> Bless, C, Higson-Smith, C, Sithole, S.L. 2013. *Fundamentals of social research methods: an African perspective*

<sup>130</sup> Ifinendo, P, Rapp, B, Ifinendo, A, Sundberg, K. 2010. *Computers in Human Behaviour*,

<sup>131</sup> Babbie, E. 2010. *The practice of social research*

<sup>132</sup> Descombe, M. 2010. *The Good research guide for small scale social research projects*

### 3.10 ETHICAL CONSIDERATIONS

Ethics speaks to issues of morality and differing opinions between what is deemed to be right or wrong when conducting scientific inquiry, where sources between right and wrong vary between individuals. The bottom line and the primary ethical considerations in research are privacy and confidentiality of using information that another person gathers.<sup>133</sup> Ethical clearance is necessary to clear the data collection instrument and to address issues of informed consent as prescribed by law when conducting research involving human participants. It is imperative to consider ethical issues right at the beginning of the study as ethical considerations should be thought about throughout the different stages of the research. Application for ethical clearance commenced as soon as a research proposal and data collection instrument for the study was completed.

The ethical procedures below were observed when conducting the study to protect the rights of respondents<sup>134</sup>:

*Informed consent and voluntary participation* – respondent volunteers to participate in the study being made aware of the risks involved. Though the study is low risk with no anticipated risk foreseen, an information leaflet advising participants on an option to withdraw from participating in the study at any time was provided.

*Anonymity*– The protection of subjects' interests and well-being translates to the protection of their identity. This study is anonymous in the sense that no names of individuals are mentioned and a link to the questionnaire was sent via e-mail.

*Confidentiality* – In cases where persons' responses can be identified, confidentiality should be guaranteed to the affected party. In this study, no responses can be linked to questions as no names were used. Basic demographic information is collected. However, no information of a personal nature is revealed in any way.

Ethical clearance for this study was obtained respectively from the University of Stellenbosch where the researcher is studying and the University of South Africa where data had been collected. Approval for ethical clearance was subsequently granted from the Research Ethical

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<sup>133</sup> Neuman, I. 2011. *Social research methods: qualitative and quantitative approaches*

<sup>134</sup> Babbie, E. 2010. *The practice of social research*



Clearance Committees of the two institutions. The researcher also received final approval from the Unisa Senate Research Committee to have permission to collect data from participants. An information leaflet and a consent form were developed to request permission and consent from participants to participate in the study (see Appendix 2).

### **3.11 SUMMARY OF RESEARCH METHODOLOGY**

A discussion on the different research paradigms is undertaken with reference to a specific worldview within which the study is undertaken is provided on this chapter. The types of research questions formulated were guided by the data collection instrument used, the research design, location of analysis and the nature of the population. The study used a quantitative research method with a post-positivism strategy (survey). A literature review was used as a primary data gathering method; an online questionnaire was developed to collect secondary data from respondents.

# *Chapter 4*

## *Data analysis and interpretation*

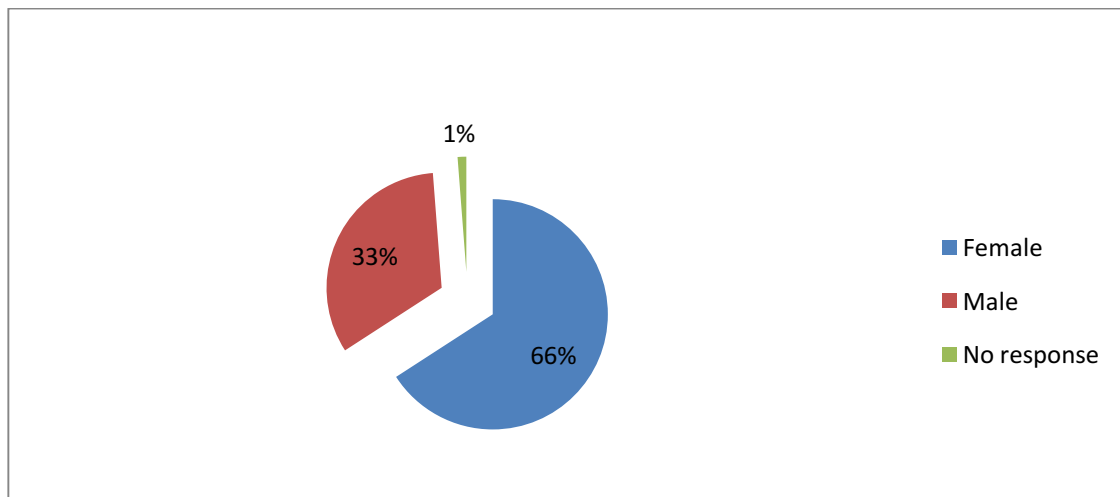
### **4.1 INTRODUCTION**

This chapter focuses on the analysis of data and interpretation of the collected data from respondents in the study. A response rate of 31.5% was achieved from 260 questionnaires sent to respondents. The questions were designed to generate factual data where statements and closed questions were used for respondents to select from predefined answers. The questions were divided according to demographics, intranet usage and knowledge sharing as well the seven constructs of the DeLone and McLean. Furthermore, graphs, charts and tables are used to simplify and interpret data collected from respondents and to establish whether research questions were adequately responded to and addressed. The responses to the questionnaire were captured on an excel spreadsheet, thoroughly cleaned and coded into numeric values and exported to SPSS software package for further analysis. It was essential to use exploratory analysis such as frequencies and descriptive analysis as well as inferential statistical analysis for the study. The rationale for using correlations and reliability testing is to try to infer from the statistical data to more general conditions whereas the descriptive statistics were used to describe what transpires in the data.

### **4.2 DESCRIPTIVE ANALYSIS**

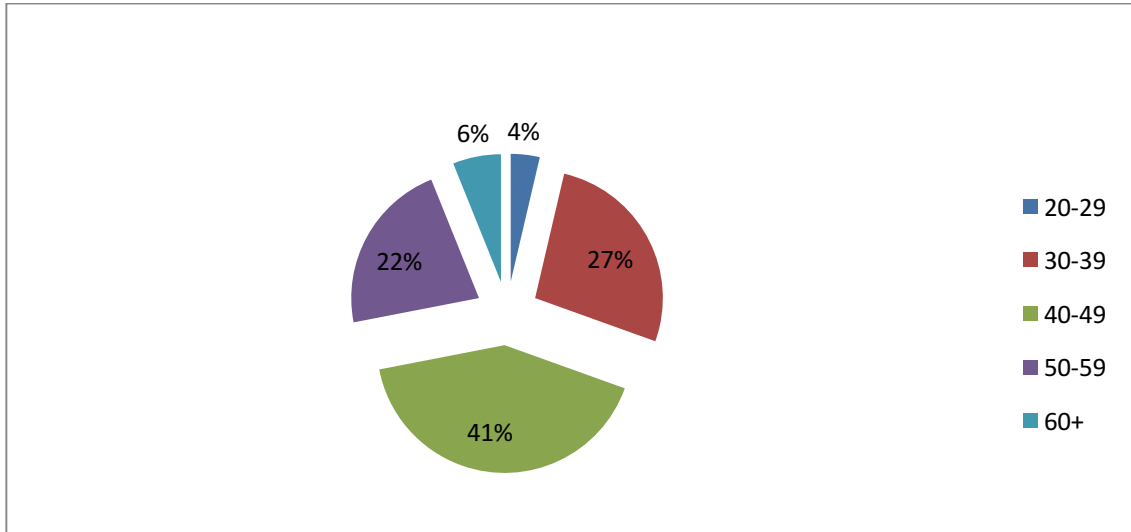
#### **4.2.1 SECTION A: Demographic profile of the Unisa Library staff members**

The demographic profile of the intranet users comprising gender, age, designation type, highest level of qualification and number of years in service at the library will be provided in this section.



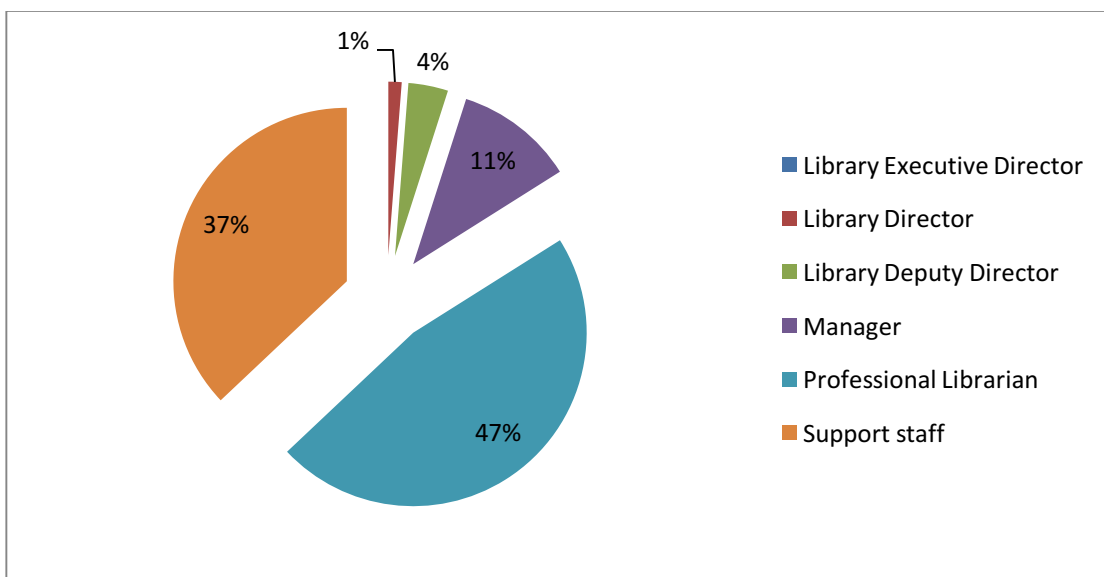
*Fig 14: Gender information*

Figure 4.1 depicts that of the 260 respondents, 66% were females, 33% were males and 1% did not respond to the question on gender. According to the September 2016 staff data from the Human Resources Oracle system, the library currently contains a total population of 154 females as compared to their male counterparts who account for 70. In addition to the latest statistics, the Library and Information fraternity is a female-dominated field that explains the high number of females. Only one respondent did not make a selection on this question. The researcher chooses not to make an assumption on this particular case as gender issues are of a sensitive nature.



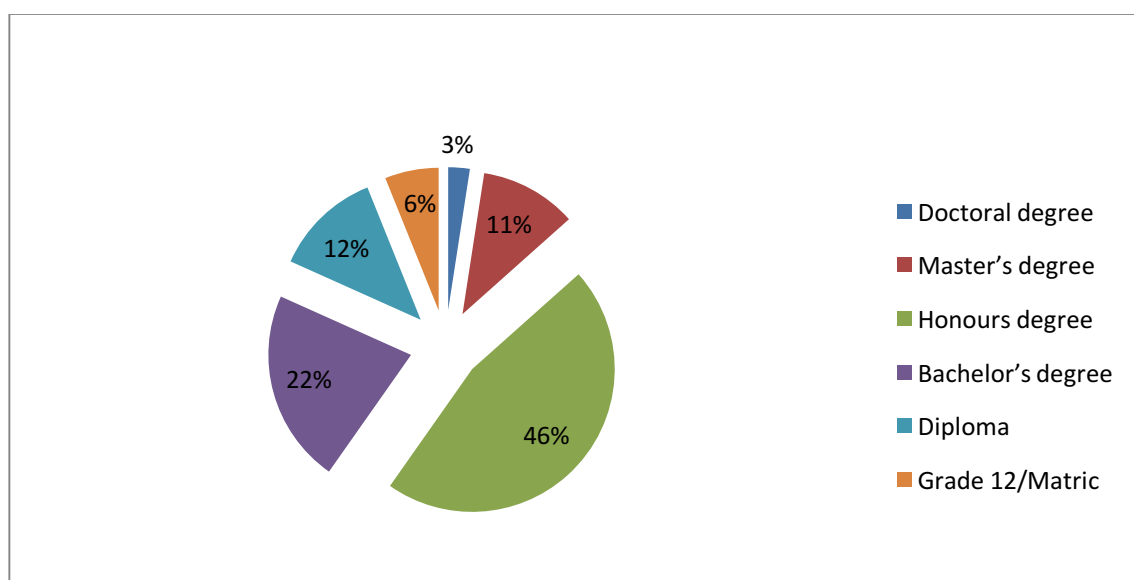
*Fig 15: Age profile*

The age of respondents was derivative from their responses to the variable question of age on the questionnaire. The age profile as depicted in table 4.2 above were calculated as at July 2016, when the survey was eventually closed. The data suggest that the highest concentration of respondents is from the age group of 30-59. A total of 41% staff members between the ages of 40-49 accounted to the highest responses on the variable of age to the questionnaire. This is an interesting discovery as baby boomers and the generation x are not necessarily receptive to technology and are often comfortable with stability and do not prefer to engage in activities that will warrant them to change how they normally do things.



*Fig 16: Designation type*

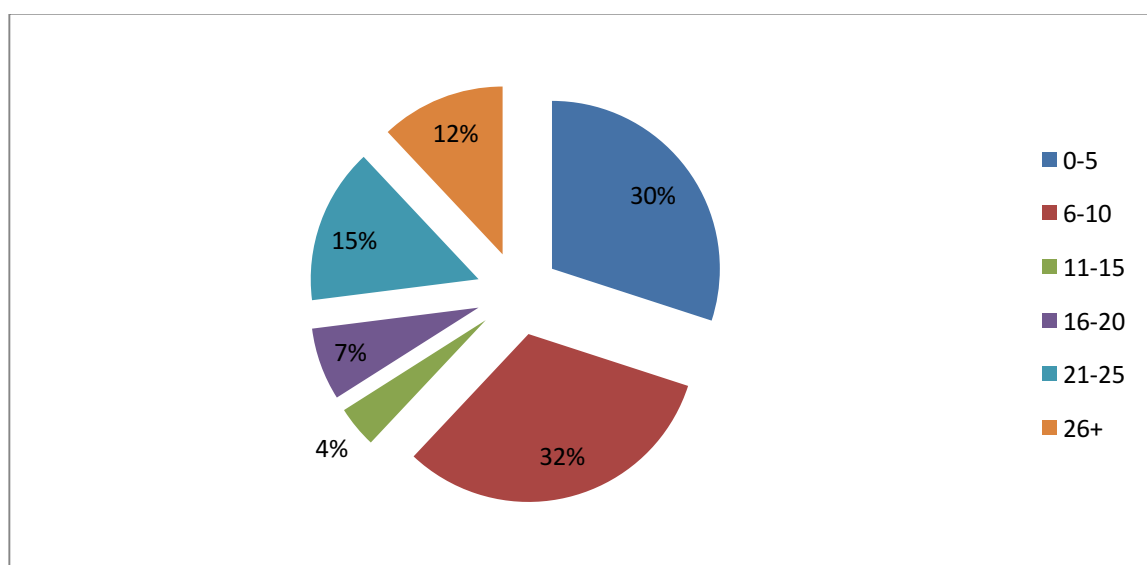
In the variable of designation type, the respondents were requested to provide their position title at the library at the time of the administration of the survey. The researcher decided to group the categories according to the Unisa HR Oracle's categories of position title. The position lowest title on the Oracle system was used to categorize designation types as it describes the actual position title of an incumbent. All Unisa library staff members have full access to the intranet through their network sign on. There are no special permissions or access rights required to access the intranet, other than the normal authentication process. However, the usage depends on the job profile of each individual as certain jobs might require more interaction with the library intranet than others. At 47%, professional librarians accounted for a higher number of respondents which could be because they engage more with the intranet as their jobs require constant knowledge acquisition. At this point, the intranet is the only formal platform that is used to deposit knowledge. The university has recently implemented ECM that is still in the trial and error phase and there are many staff members undergoing training on the tool. About 37% consisted of support staff members who showed interest in the use of the intranet. This indicates that this group is also receptive to technology and the advances thereof. There was no selection from the Executive Director designation.



*Fig 17: Educational qualification profile*

In the Library and Information Services field, a person is said to be a qualified professional Librarian if he or she possesses a Bachelor degree qualification or equivalent. It is not

surprising that an overwhelming majority of 94% has attained a formal qualification from Diploma to the level of doctoral studies. The high number is very encouraging as it indicates that this highly educated group does engage with the intranet and are able to provide valuable feedback for its improvement. Only 6% of respondents indicated that they only have a matric certificate. This group composed of support staff members who do not necessarily perform professional duties in the library. The percentage of this group is very low and does not impact the results in a negative way.

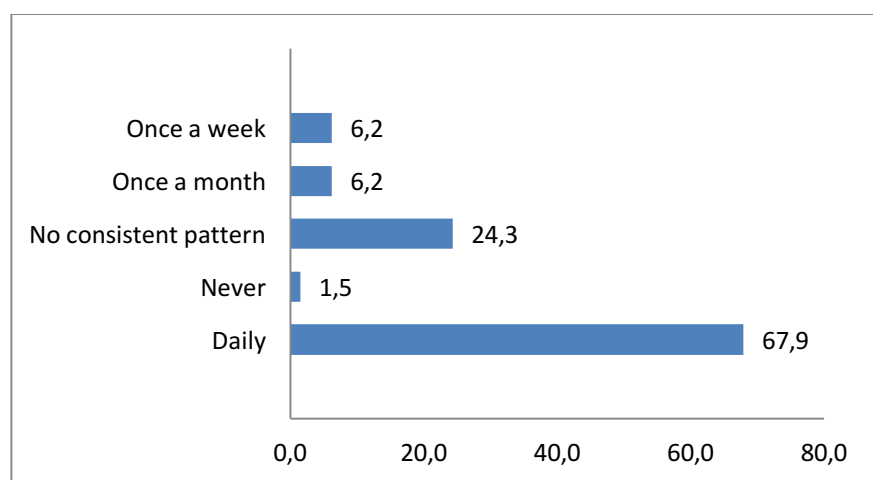


*Fig 18: Number of years in service*

Fifty two percent (52%) of the respondents to the survey have been in the employ of the library for a period between a couple of months to 10 years. A sizeable number of respondents accounted for 27% of the responses who have been in the employ of the library for a more than 20 years. This is an indication of career stability and loyalty to an organization. This further shows that this group has an interest in the development that occurs within the library, despite having undergone many changes in terms of the different information systems sourced by the library and the different versions used. Only 11% of respondents have been in the employ of the library for between 11 to 20 years.

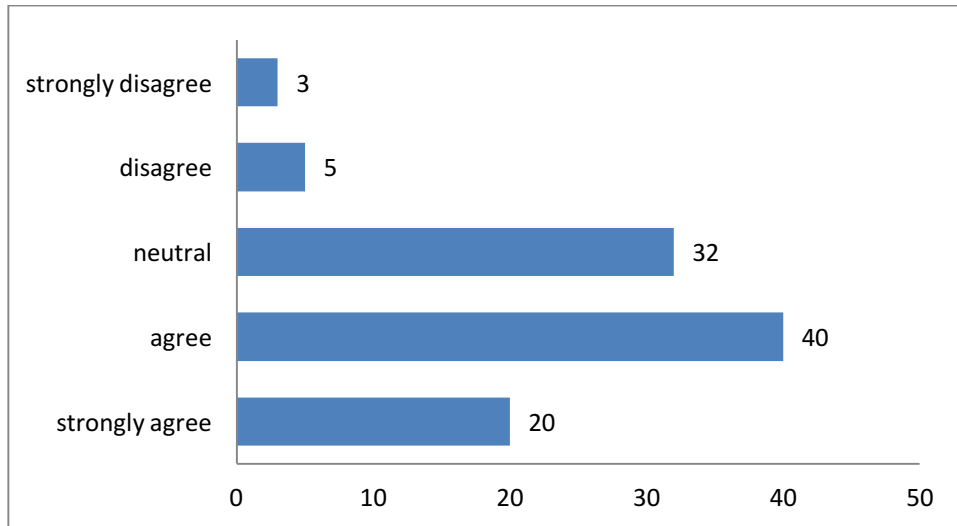
#### 4.2.2 SECTION B: Intranet usage and knowledge sharing

Section B of the questionnaire investigated the usage of the intranet and the way in which the library staff members understood the sharing of knowledge within the organization. Statements were posed to respondents to indicate the extent to which they agree or disagree with the statements. A five-point Likert scale ranging from agree, strongly agree, neutral, disagree and strongly disagree was used to investigate the extent. The results to the questions and statements are depicted below.



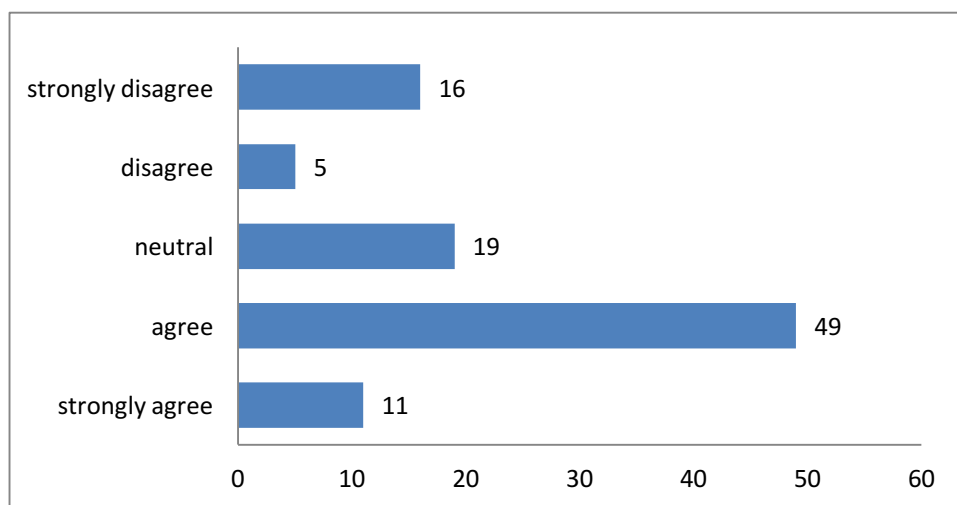
*Fig 19: Synthesis of responses on how frequently do the Unisa Library staff members use the intranet.*

The frequency at which staff members use the library intranet varies. The results of the survey to the question of frequency of use of the intranet indicate that 67.9% of respondents interact with the intranet on a daily basis. This is a very positive result as most of the operational documents are placed on the intranet. University libraries are knowledge intensive environments and play an important role in the exchange of knowledge. The high percentage could also mean that the library staff members see the value add in using the intranet. Only 1.5% of respondents indicated the non-use of the intranet and this could be attributed to a host of factors. However, 24.4% of respondents do not have a specific pattern in terms of accessing the intranet.



**Fig 20:** Synthesis of responses to the statement: *I would like to share my knowledge and expertise on the intranet.*

The statement on the sharing of knowledge and expertise sought to solicit information on the understanding of the staff members on the importance of the concept of knowledge sharing using the intranet. From the demographic data collected in section A of the questionnaire, 32.2% of responses indicated that they have been with the University for a period of six to 10 years. This means that they have been in the system long enough to have accumulated the necessary knowledge. Generally, the responses are positive as a total of 59.2% of responses either agree or strongly agree that they would like to share knowledge on the intranet. This shows that the library staff members realize the value of knowledge sharing.



**Fig 21:** Synthesis of responses to the statement: *The Unisa Library professional and support staff share knowledge on the intranet*



The statement on the sharing of knowledge on the intranet was divided into two broad categories, which were clustered as support, and professional as well as a cluster of library management composed of Library Executive Directors, Directors, Deputy Directors and Managers. The second cluster of library management will be discussed in the statement regarding sharing of knowledge by library management. In addition, over 60.1% agreed and strongly agreed that support and professional staff members share knowledge on the intranet. The data suggest that the library staff members do understand the importance of a learning organization and the impact of sharing knowledge for competitive advantage. Furthermore, 18.8% of respondents were neutral and 26.3% either disagreed or strongly disagreed with the statement.

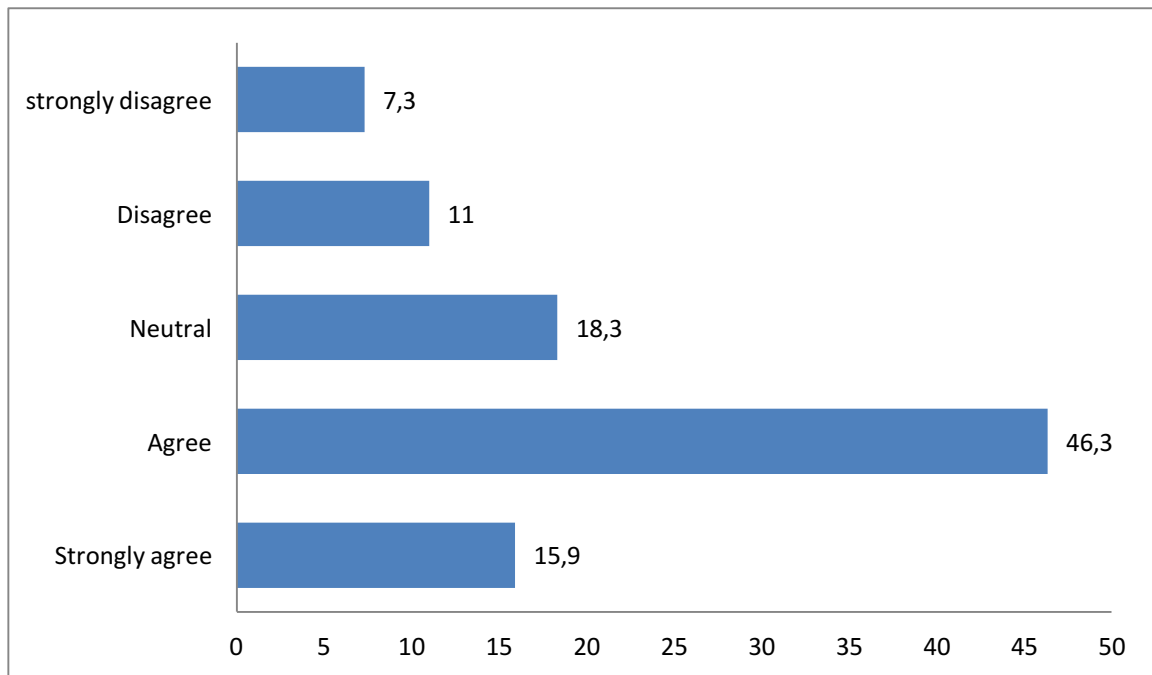


Fig 22: Synthesis of responses to the statement: *The Unisa Library management share knowledge on the intranet*

The responses to the statement on library sharing knowledge on the intranet show that the library staff members have an expectation that the library management should share knowledge on the intranet. Almost a half of respondents (46.3%) agreed with the statement whereas 15.9% strongly agreed with the statement. In comparison to the above statement on professional and support staff sharing knowledge, the data show that sharing of knowledge at the library lies with all staff members within an organization irrespective of position or rank.

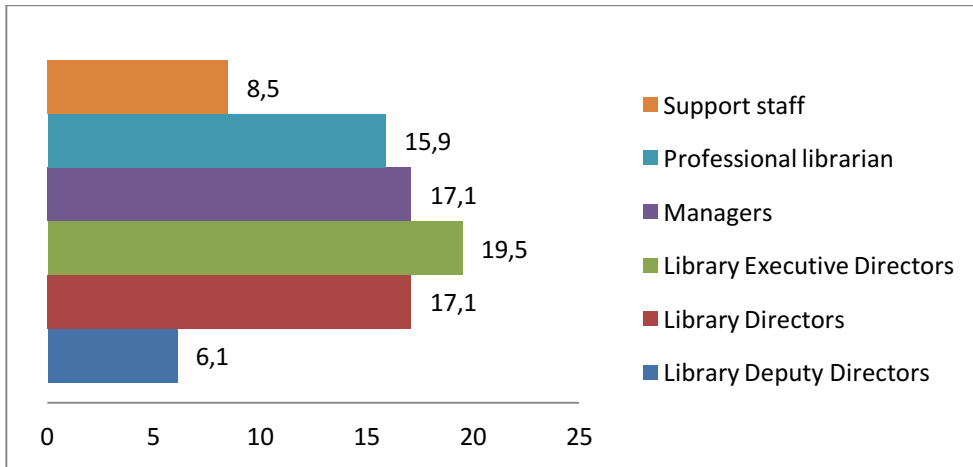


Fig 23: Synthesis of responses to the question *Who is currently the main contributor of knowledge on the intranet?*

The Library Executive Directors accounted for the highest responses of 19.5% whereas the Library Directors and Managers are neck-to-neck with 17.1% of responses. The Library Executive Directors are seen to be knowledge producers in the library which could be due to their level and the expectation could be that they need to contribute more as compared to other staff members. The data show that support staff members are contributing less or are rather expected to contribute less at 8.5%.

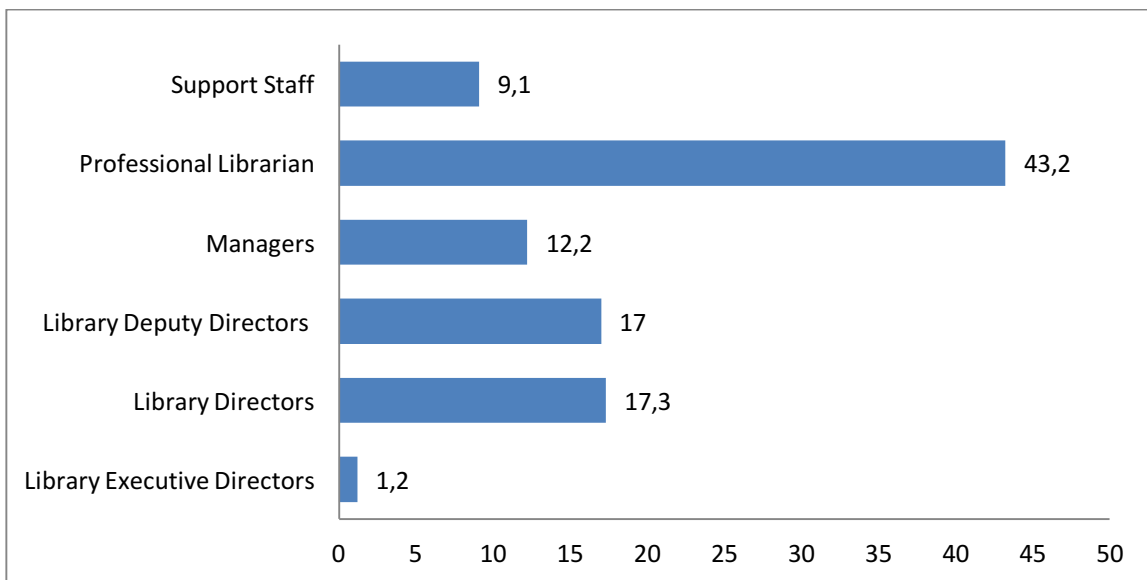


Fig 24: Synthesis of responses: *In future, who in your opinion should be the main contributor of knowledge to the Library intranet?*

Data on the opinions of respondents on who should currently be the main contributor of knowledge show that 43.2% professional Librarians are expected to share knowledge on the intranet. A high contingent of professional Librarians in the library is involved in knowledge transfer activities such as training of master's and doctoral students and by the nature of their job they produce a plethora of knowledge during these engagements. The very same group is involved in the development of manuals and aids which also forms part of knowledge capturing activities. This could be the rationale for the high responses. There is a very low margin of difference between the Library Directors and the Library Deputy Directors with 17.3% and 17% respectively. The Library Executive Directors accounts for a less percentage of 1.2%. This is surprising as they are a link between middle management and executive management and in such relationships there is a vast knowledge exchanging hands. Support staff accounts for 9.1 %, whereas Managers scored 12.2%.



Fig 25: Synthesis of responses to the statement *I understand the purpose of a Unisa Library intranet to be the following:*

Responses to a statement on the purpose of the library intranet were rated according to a five-point Likert scale ranging from 1 = lowest, 2 = low, 3 = medium, 4 = high, 5 = highest. Predefined statements found in the literature were provided to respondents to describe the

various purposes of the intranet. Data suggest that all the presented purposes of the intranet were mostly rated from the medium, high to the highest. The researcher assumes that since respondents understand the purpose and the reason for the existence of the intranet the usage will increase. For instance, 50% of surveyed population ranked the intranet highly as *a site used by the Library Executive Team to communicate important information to staff*. The intranet as *a repository where work-related documents are saved* and *a site for keeping up to date with the latest developments within the library* was ranked the lowest by respondents at 2.44% and 2.50% respectively.

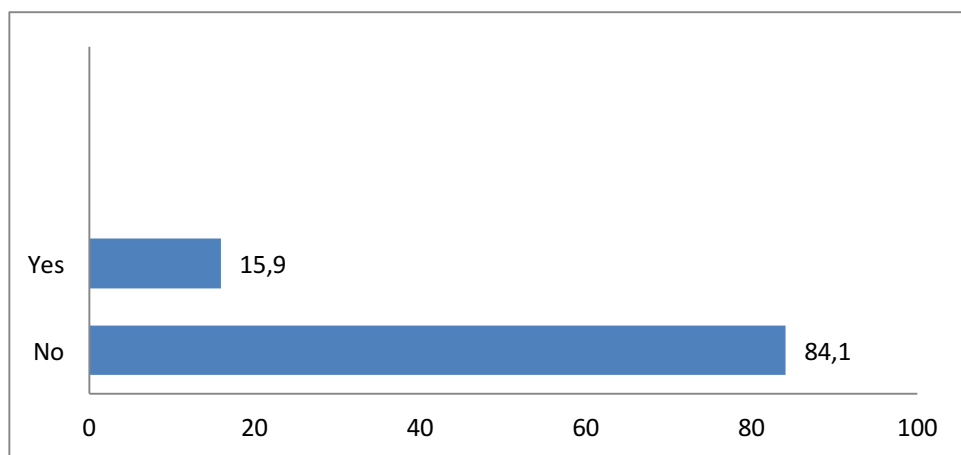


Fig 26: Synthesis of responses to the question *Have you submitted any knowledge or items through the intranet in the past 6 months?*

The respondents were asked whether they have submitted any items to the library's intranet for publishing and to be shared with other staff members in the last six months. The respondents had a choice between responding with Yes or No. Those who responded in the positive were requested to proceed to the next question whereas those who responded in the negative were requested to move to question 15. The reason for the two instructions was that staff members who have never posted any items on the intranet would not have been able to respond to subsequent questions (11-14) as they relate to the exact items that were posted. The results showed that 84.1% of respondents did not post any knowledge related items on the intranet in the past six months and only 15.9% percent responded with a *No* to the question. This is an indication that the intranet is not used optimally or the people who use it never post anything but do benefit from the knowledge posted by others.

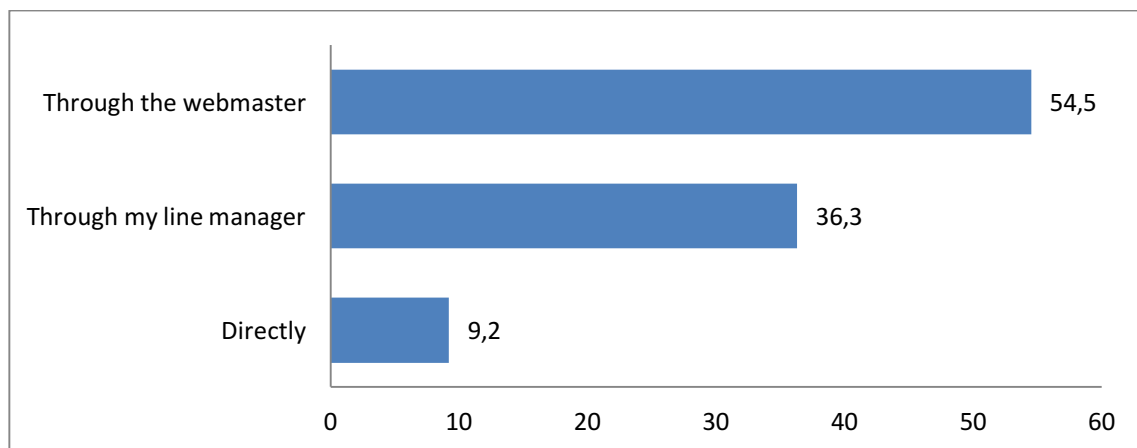


Fig 27: Synthesis of responses to the question *how do you post knowledge or items on the Unisa Library intranet?*

As demonstrated in figure 27 above, 86.6% of the respondents from a population of 82 skipped this question as it did not relate to them but to those who have posted knowledge related items on the intranet in the past six months. Only 13.4% posted items on the intranet. The library has guidelines that state that all the items posted on the intranet should be done through the line manager, who then refers the requests to the webmaster who posts them on the intranet. Only Library Directors and Executive Directors are allowed to post items directly on the intranet.

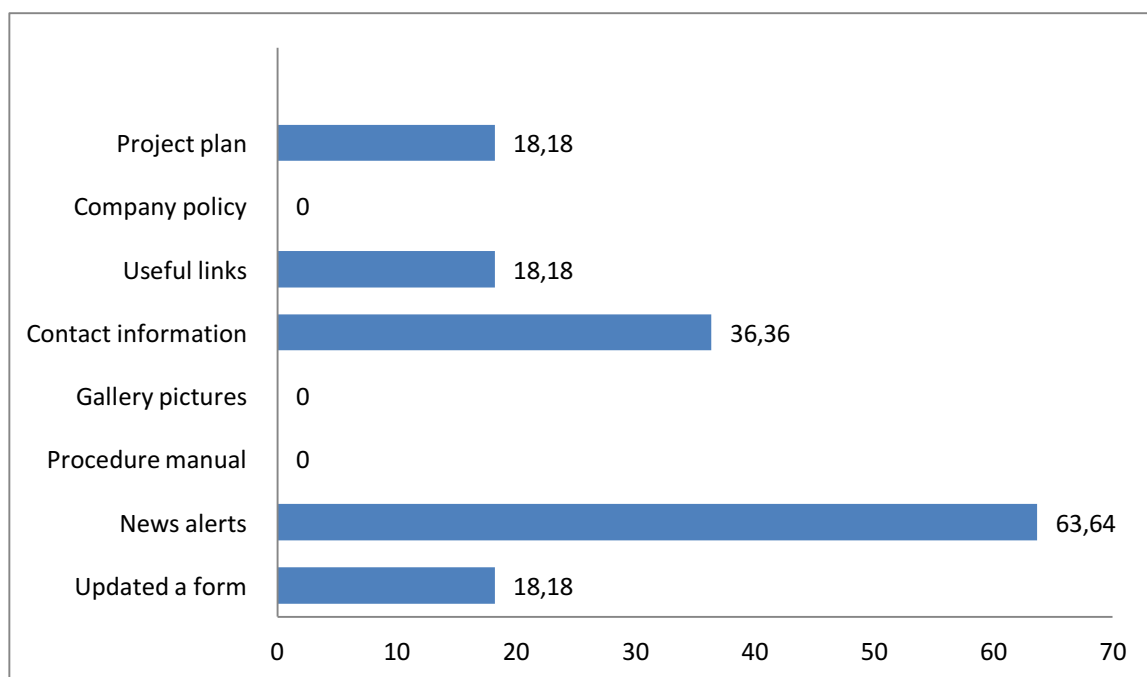


Fig 28: Synthesis of responses to the question: *What type of items have you submitted to the intranet in the past 6 months?*

A total of 71 respondents did not respond to this question as they fall within the band of people who have never posted any items on the intranet. The data show that in order of hierarchy, 63.64% post news alerts, and 36.36% posts or updates contact information and 18.18% updated a form, posted useful links or posted a project plan on the intranet. There were no responses received for the remaining items.

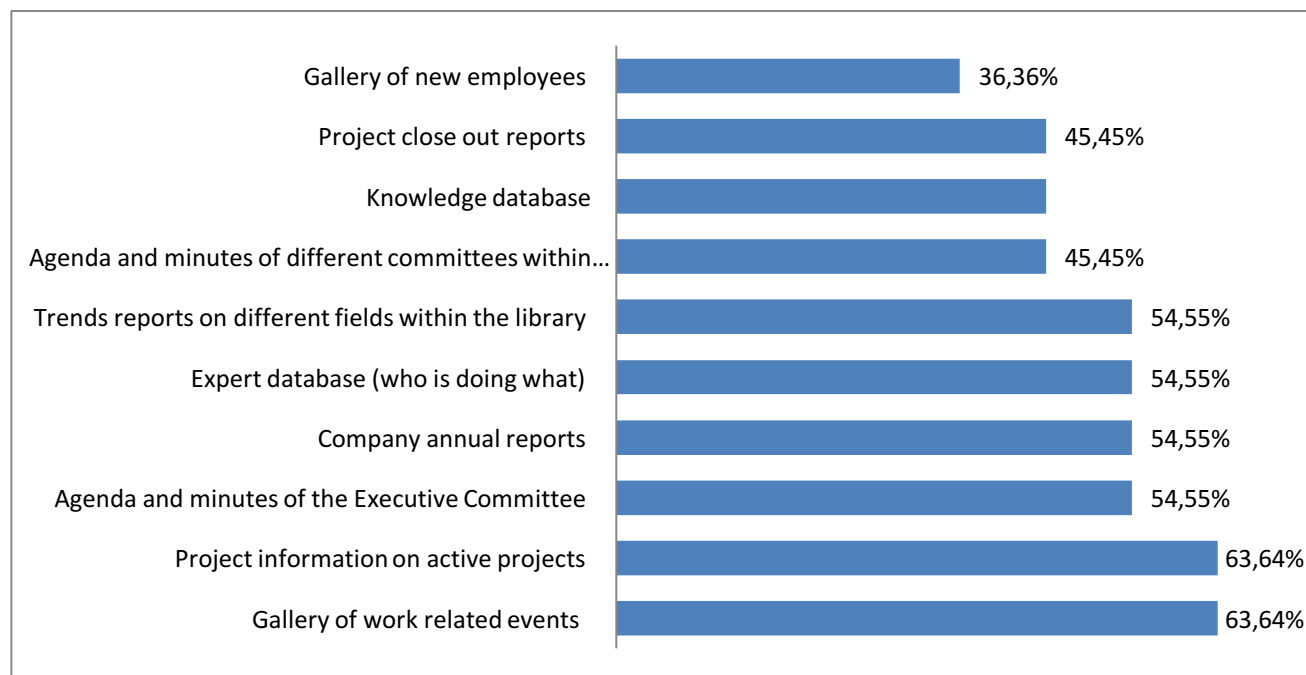


Fig 29: Synthesis of responses to the question; *what items would you like to see on the Unisa Library intranet?*

Respondents were asked to select the items that they would like to see published on the intranet and the emphasis was on work-related items. The items of project information and gallery of work-related events were scored at 63.64% and the gallery of new employees were ranked low at 36.36%. Documents and reports produced by different committees and structures within the library were also ranked high at an average of 54.55%.

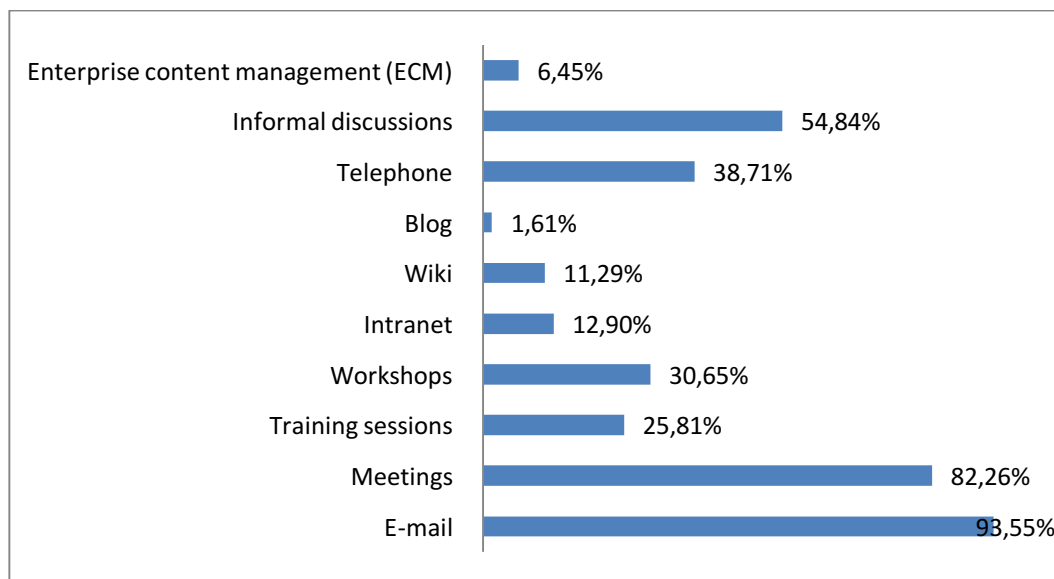


Fig 30: Synthesis of responses to the question; *which method/s do you often use to share work-related information with colleagues?*

The responses as depicted in figure 4.17 above show the preferred platforms often used by staff members. It is concerning to note that the intranet which is developed to host company operational information is ranked low at 12.9%. It is evident from the results that library staff members prefer to use e-mails, hold meetings to communicate, collaborate and share knowledge as the two selections were ranked very high at 93.5% and 82.2% respectively.

#### 4.2.3 SECTION C: Constructs from DeLone and McLean's model

The section below covers synthesis of responses from statements related to the six constructs of the DeLone and McLean's model. Respondents were asked to indicate the extent to which they agree or disagree with the statements and the responses were ranked according to a five-point Likert scale ranging from; *1=strongly disagree; 2=disagree; 3= neutral; 4=agree; 5=strongly agree*. The mean score of the six constructs of DeLone and McLean were calculated to determine an average between variables. By calculating the mean response of all respondents for each variable or construct, the overall picture of how the library staff perceives the effectiveness of intranet was then explored. Table 4.1 displayed the general evaluation of the constructs which are sorted in descending order. Further analysis of the different variables is discussed below.

Construct	N	Mean
Use	82	2.4
Information Quality	77	3.2
System Quality	62	3.4
Net Benefits	77	3.5
User Satisfaction	77	3.3
Service Quality	77	3.2

Table 3: Mean differences for variables

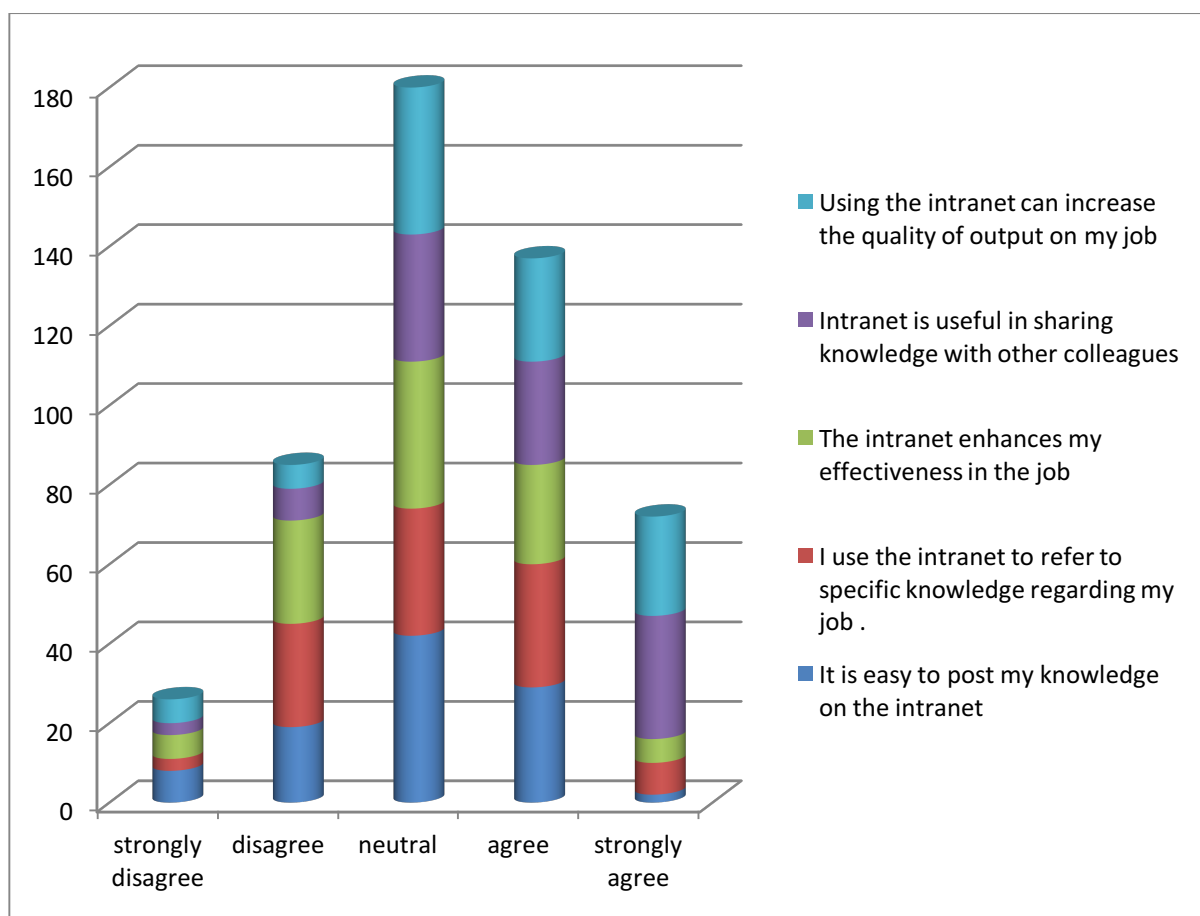


Fig 31: synthesis of responses to the construct of Use



The construct of *use* was calculated at 2.4, which thus indicates that intranet users responded in the negative regarding their usage of the intranet. This further depicts that the usage of the intranet is very low. Respondents were asked to indicate the extent to which they agreed with the five statements under the construct of *use*. The responses varied with a high response rate of neutral responses followed by disagree and strongly disagree.

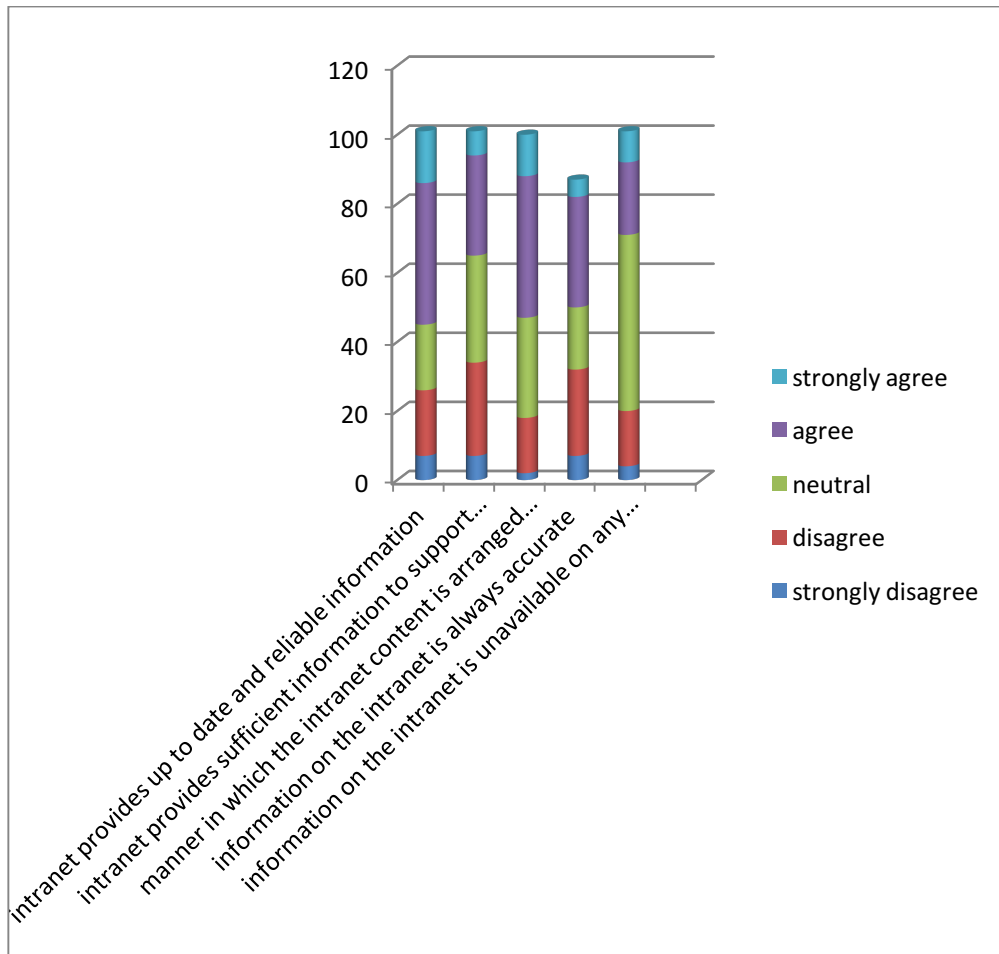


Fig 32: *Synthesis of responses to the construct of Information quality*

The overall mean score of the *information quality* construct is 3.2. This indicates that intranet users are somewhat satisfied with the data and content of the intranet. Information quality construct is used to assess the desirable characteristics of the intranet's output to provide relevant, understandable, complete and up-to-date information to the users. The quality of information has huge implications for an organization as it impacts on decision making. The data stored in the intranet is customized to the operations of the library and cannot be located

in any other platform within the university as it related directly to library processes. Just over a quarter of respondents (25.5%) were in agreement with the above statement, whereas 24.4% indicated that they disagreed with the statement that the intranet provides sufficient information to support their work. The low rate is alarming as it means that staff members do not approve of the quality of the information on the intranet. Over a half of respondents (54%) agreed and strongly agreed respectively that the content on the intranet is arranged in an understandable and usable manner. Conversely, a low 12.2 % disagreed with the statement. Overall, the intranet is properly arranged for ease of use. This might encourage the use of the tool as 26.9% of respondents agreed that the information on the intranet is error free. Only 22% of respondents remained neutral to the statement on the accuracy of the information on the intranet. On the contrary, 23.2% of respondents disagreed with the statement on the accuracy of the information residing on the intranet.

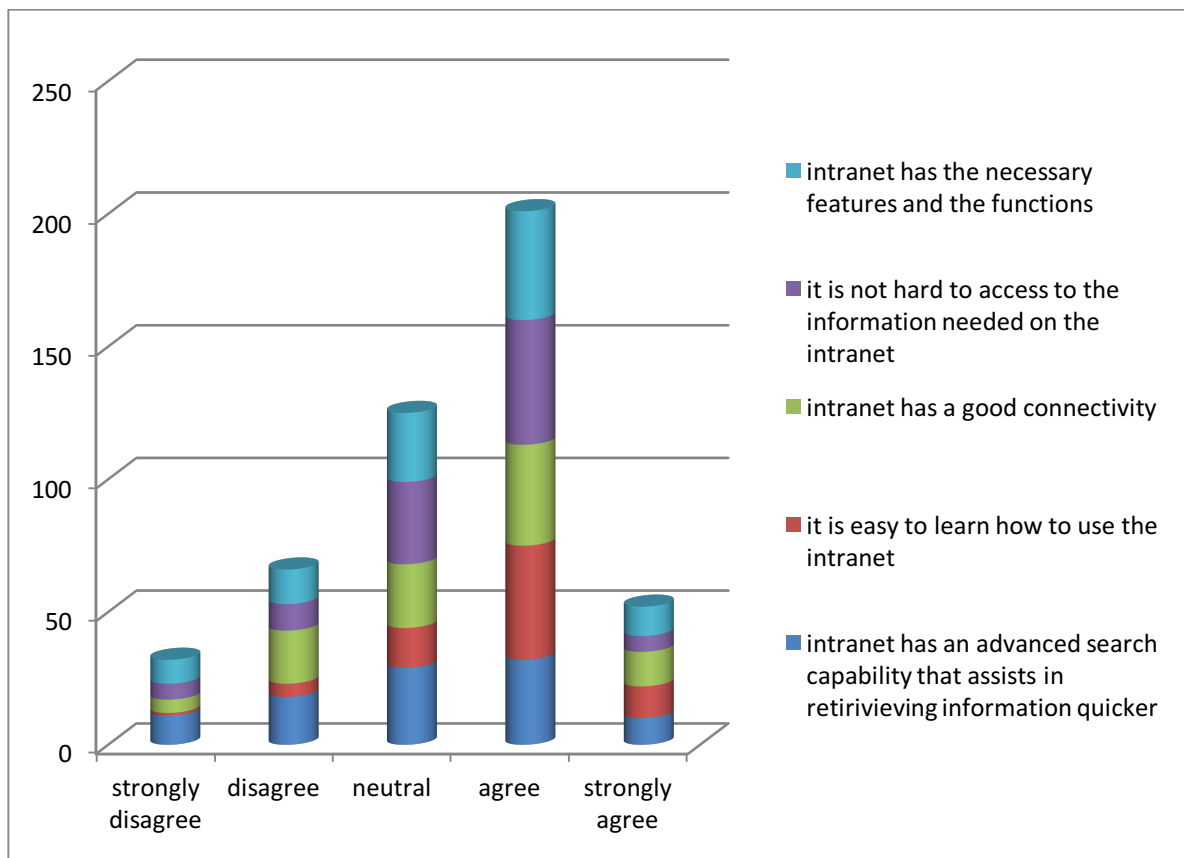
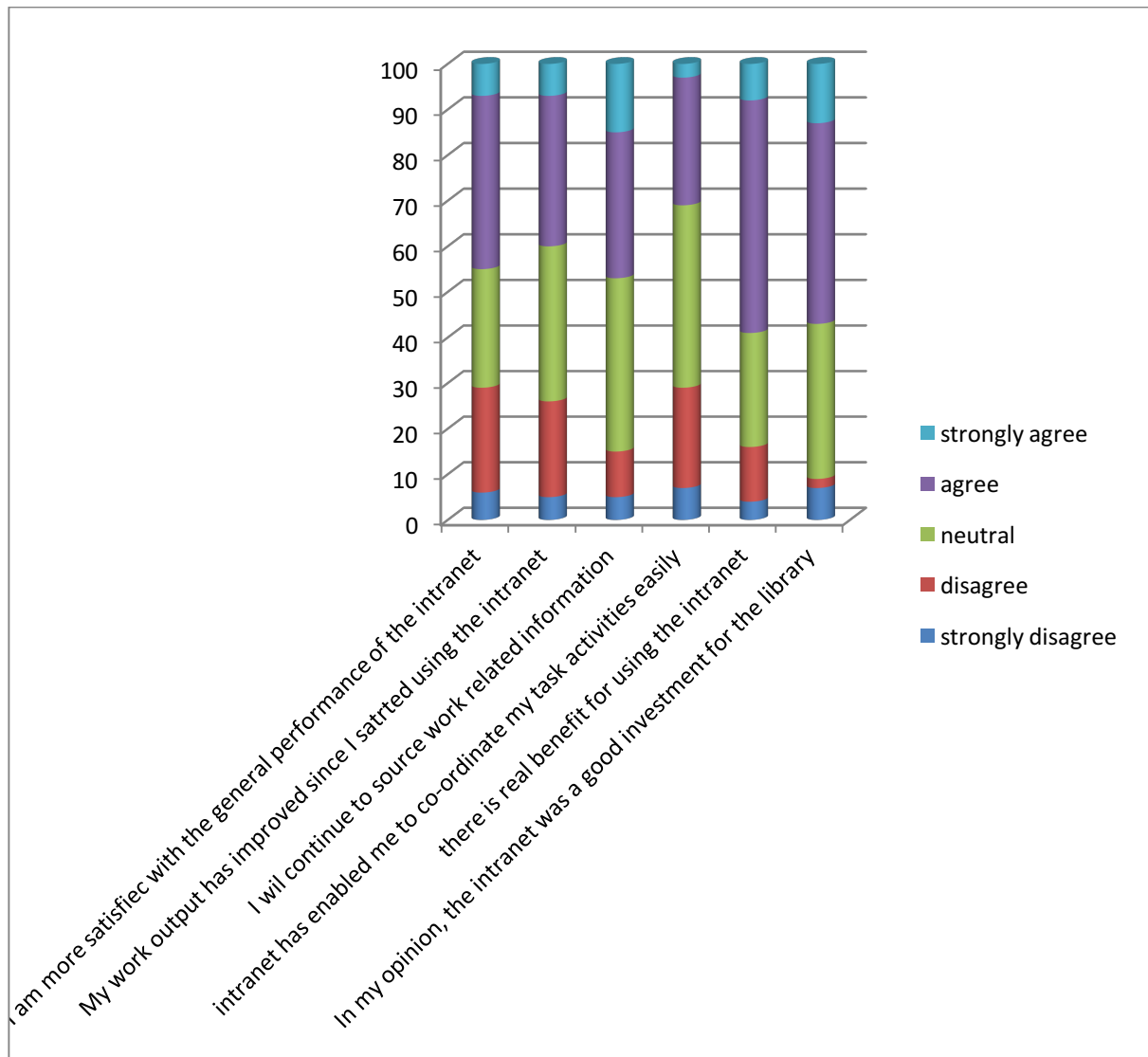


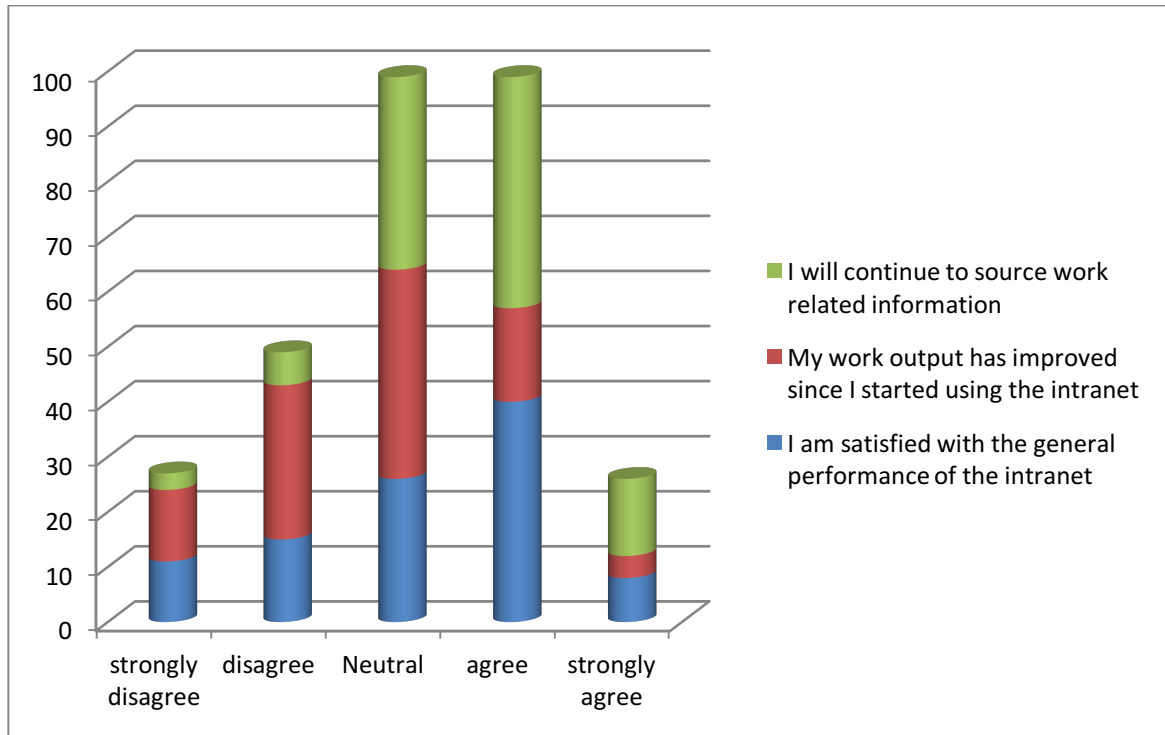
Fig 33: Synthesis of responses to the construct of System quality

The quality of the system related to the necessary characteristics of the library intranet in terms of its flexibility, ease of use and reliability. Only 42% of respondents agreed that the intranet's search capability is advanced and allows them to retrieve information quicker. This is a good sign as this shows the positive characteristics of the intranet. On the contrary, 39% of respondents disagreed with the statement regarding advanced search capabilities. Intranets that were developed prior to the era of web 2.0 do not have advanced search capabilities as they were mostly build to store information, which could be the case with the library's intranet. Regarding the responses on the statement about the ease at which intranet can be used, 54.9% of respondents strongly agreed that it is easy to learn how to use the intranet. The positive feedback on the statement is encouraging as the ideal situation is for staff members to access the intranet at the time of need without any hassles with a user-friendly interface which is easy to use and not too technical. The same goes with the statement on whether '*it is hard to get access to the information needed on the intranet.*' Slightly over a half of respondents 52% responded that it is easy to access the intranet, whereas 6% disagreed with the statement and this could be from the support staff members who might have a challenge with computer literacy. The issue of intranet connectivity received good reviews from staff members as 51% were delighted with the connectivity.



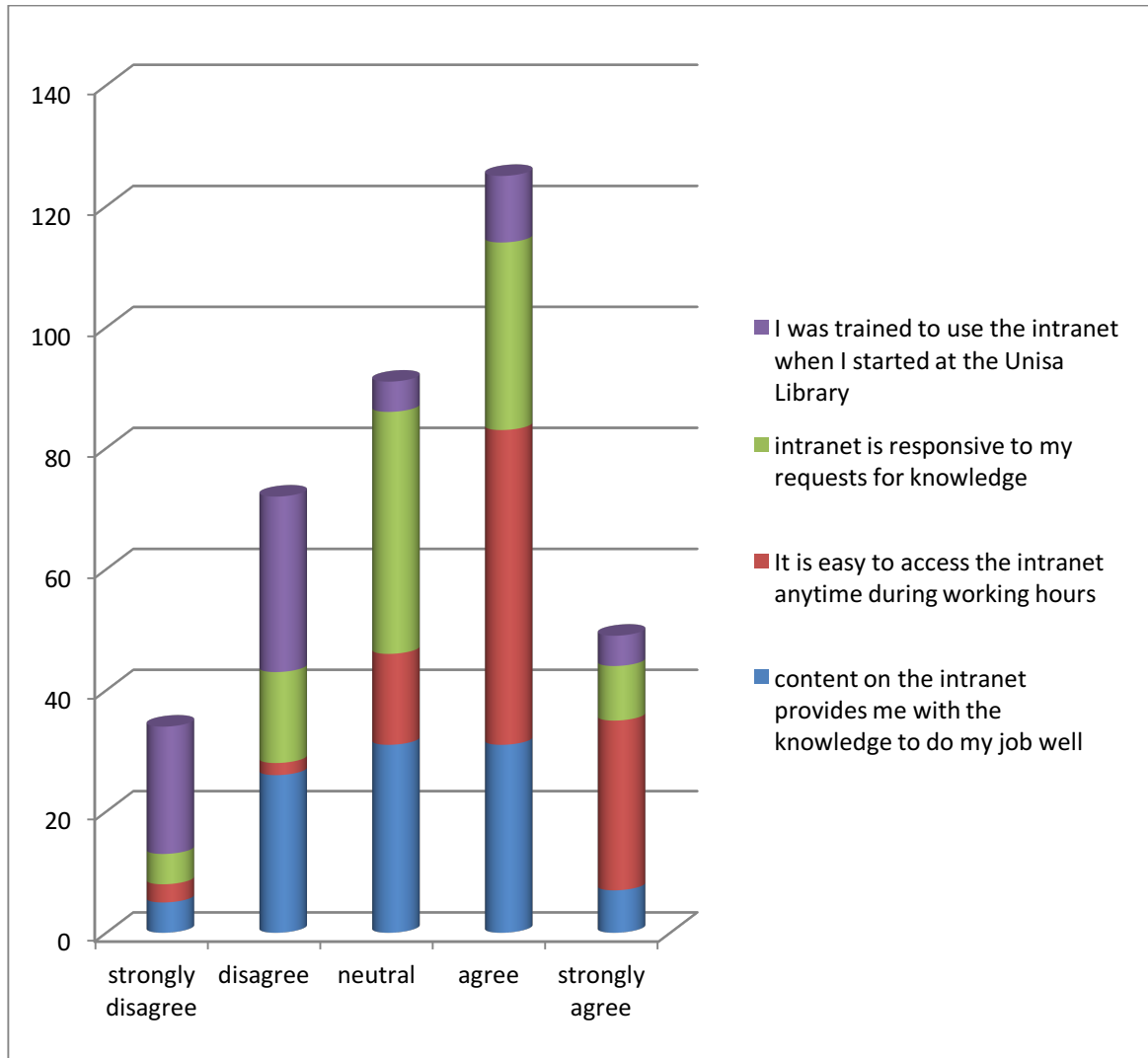
**Fig 34: Synthesis of responses to the construct of Net benefits**

An overwhelming majority of 77 responses were provided to six statements regarding the net benefits provided by the intranet. The respondents are of the opinion that the intranet is the best investment for the library and that they have realised real benefit for using the tool. From figure 4.21 above, the results show that there is general agreement with the statements posed at the respondents as they have responded positively with an average of 40% on each statement. The negative responses averaged 25% on each statement. This is confirmation that the intranet does have some benefits and might need some improvements in certain aspects.



*Fig 35: Synthesis of responses to the construct of User satisfaction*

Just under a half of respondents (48%) of respondents stated that they will continue to source work-related information from the intranet as they are generally satisfied with the general performance of the intranet. Respondents were asked to rate the extent to which their work output has improved since they have started to use the intranet, 38 % were neutral and 41% reported that there has not been any change in their work output since the use of the intranet.



*Fig 36: Synthesis of responses to the construct of Service quality*

Service quality relates to the quality of service or the support that intranet users receive from the information technology division or its technical competency. The accessibility of the intranet during working hours is dependent on the connectivity of the network. An overwhelming majority of 80% of respondents agreed and strongly agreed that the intranet can be accessed with ease during working hours. This statement shows consistency in responses as the same positive response was received on system quality construct which is closely related to this construct of service quality. The questionnaire for the study was administered to the 82 permanent staff members of which 47% of respondents are professional staff members. The results also show that 46% have reported having the highest qualification of an Honours degree. The results indicate that a high

number of respondents are literate and could also be computer literate due to the nature of their job responsibilities. The respondents further indicated that they find the intranet easy to operate which could be the reason for negative responses on the statement pertaining to training. Just over a half of respondents (51%) disagreed that they have received training to use the intranet and the reasons for the high response rate on the fact that staff members were not trained on the tool is already discussed above. Conversely, only 15% agreed that they have been trained to use the intranet. It is suspected that the training could be peer training from other colleagues.

	<b>CONSTRUCTS</b>	<b>MEAN</b>	<b>STD DEVIATION</b>	<b>P-VALUE</b>
	Overall constructs	92.2	18.95	0.96
1	Net benefits	3.5	0.75	0.80
2	System quality	3.4	0.80	0.81
3	User satisfaction	3.3	0.85	0.76
4	Service quality	3.2	0.78	0.77
6	Information quality	3.2	0.78	0.81
7	Use	2.4	1.55	0.85
8	Gender	1.5	0.51	-
9	Age	3.0	0.95	-
10	Designation	5.1	1.03	-
11	Education	3.5	1.15	-
12	Year of Service	2.8	1.82	-

*Table 4: Item reliability scale*

#### **4.2.4 Reliability testing**

High quality tests are important in a research study to evaluate the reliability of the data provided. If Cronbach's Alpha is greater or equal to 0.71 then the scale is considered as reliable. If the scale is below 0.7 then the scale is not reliable. Table 4.2 depicts item scale reliable for demographic items and the construct from the DeLone and McLean's model. Since Cronbach's Alpha for this scale is 0.771, we could declare that the scale to be reliable. It is assumed that the same results would be achieved if the test is repeated using the same scale. The table below gives a breakdown of reliability analysis per item.

Correlations												
		Q1_Gender	Q2_Age	Q3_Designation	Q4_Education	Q5_YearService	Service_Quality	User_Satisfaction	Net_Benefits	System_Quality	Info_Qlty	Use_1_by_1
Q1_Gender	Pearson Correlation	1	.104	-.156	-.041	.005	.108	-.029	.037	.007	-.066	-.12
	Sig. (2-tailed)		.355	.162	.717	.967	.351	.799	.747	.958	.568	.25
	N	82	82	82	82	82	77	77	77	62	77	8
Q2_Age	Pearson Correlation	.104	1	-.295**	-.118	.678**	-.158	-.114	-.074	-.111	-.174	-.10
	Sig. (2-tailed)	.355		.007	.293	.000	.170	.325	.523	.389	.130	.37
	N	82	82	82	82	82	77	77	77	62	77	8
Q3_Designation	Pearson Correlation	-.156	-.295**	1	.506**	-.137	.134	.160	.086	.108	.105	-.01
	Sig. (2-tailed)	.162	.007		.000	.218	.247	.164	.455	.401	.364	.90
	N	82	82	82	82	82	77	77	77	62	77	8
Q4_Education	Pearson Correlation	-.041	-.118	.506**	1	.011	-.078	.082	-.065	-.014	.019	-.14
	Sig. (2-tailed)	.717	.293	.000		.922	.501	.478	.573	.913	.869	.20
	N	82	82	82	82	82	77	77	77	62	77	8
Q5_YearService	Pearson Correlation	.005	.678**	-.137	.011	1	-.205	-.135	-.106	-.144	-.184	.02
	Sig. (2-tailed)	.967	.000	.218	.922		.073	.243	.358	.265	.109	.83
	N	82	82	82	82	82	77	77	77	62	77	8
Service_Quality	Pearson Correlation	.108	-.158	.134	-.078	-.205	1	.636**	.559**	.610**	.788**	.21
	Sig. (2-tailed)	.351	.170	.247	.501	.073		.000	.000	.000	.000	.06
	N	77	77	77	77	77	77	77	77	61	77	7
User_Satisfaction	Pearson Correlation	-.029	-.114	.160	.082	-.135	.636**	1	.604**	.509**	.708**	.343
	Sig. (2-tailed)	.799	.325	.164	.478	.243	.000		.000	.000	.000	.00
	N	77	77	77	77	77	77	77	77	61	77	7
Net_Benefits	Pearson Correlation	.037	-.074	.086	-.065	-.106	.559**	.604**	1	.977**	.549**	.07
	Sig. (2-tailed)	.747	.523	.455	.573	.358	.000	.000		.000	.000	.53
	N	77	77	77	77	77	77	77	77	61	77	7
System_Quality	Pearson Correlation	.007	-.111	.108	-.014	-.144	.610**	.509**	.977**	1	.572**	.509
	Sig. (2-tailed)	.958	.389	.401	.913	.265	.000	.000	.000		.000	.00
	N	62	62	62	62	62	61	61	61	62	61	8
Info_Qlty	Pearson Correlation	-.066	-.174	.105	.019	-.184	.788**	.708**	.549**	.572**	1	.24
	Sig. (2-tailed)	.568	.130	.364	.869	.109	.000	.000	.000	.000		.03
	N	77	77	77	77	77	77	77	77	61	77	7
Use_1_by_1	Pearson Correlation	-.128	.100	-.014	.141	.024	.211	.343**	.073	.509**	.244*	
	Sig. (2-tailed)	.251	.370	.901	.206	.832	.065	.002	.530	.000	.032	
	N	82	82	82	82	82	77	77	77	62	77	8

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

*Table 5: Bi-variate correlations between variables*

Correlations describe the effect that two or more variables occur together and have relations or linkages. Bivariate correlations were used to describe a linear relationship between demographic variables and the six constructs of the DeLone and McLean model. Table 4.2 above shows the association among all exploratory variables. Age is significantly associated with designation and year of service. There is a significant relationship between education and designation. A strong relationship also exists among service quality, user satisfaction, net benefits, system quality and information quality. The association between education and use is significant at 10%.

#### 4.3. SUMMARY OF DATA ANALYSIS

A questionnaire was sent to 260 respondents and data were collected from 82 respondents over a period of a month which translated to a response rate of 33%. The gender distribution was high on females at 66% and males at 33%. The findings of the study suggest that the



Library and Information Science field is a female-dominated profession which could be a reason for a large number of female respondents. The demographic profile indicates that a high number of respondents were from the age group of 40 – 49 years and there is almost an equal distribution of responses in the age groups of 30 - 39 and 50 – 59. Professional librarians participated in large numbers in the survey followed by support staff members. These could be that the two groups account for the largest number of staff within the library. The respondents are highly educated with most of them being in possession of Honours degree and Bachelor's degree respectively. Respondents who have been in the employ of the library for a period of between 0-10 years responded in the majority.

# *Chapter 5*

## *Findings, limitations, recommendations and conclusions*

### **5.1 INTRODUCTION**

The information provided in the preceding chapters will be synthesized in this chapter. The main research question: *How effective an intranet is, as a knowledge sharing tool in an ODL Library* has been addressed and the sub-questions were also covered. This chapter will discuss the findings, draw conclusions from the findings and further make recommendations for future research. The recommendations will assist the Unisa Library to review the state of the intranet and focus on its improvement to be an interactive tool that will also include collaborative capabilities. The significance of this study is to generate new knowledge and understanding on the intranet as a knowledge sharing tool generally in ODL libraries or academic libraries in broad terms. It is envisaged that the findings identified will assist the authorities to develop proper improvement plans to ensure that intranet is optimally used for the intended purpose. The study will further contribute towards intranet policy making and an improvement of information and knowledge systems in general.

### **5.2 DISCUSSION OF THE FINDINGS**

Results received from the analysed data will be discussed in this section. The effectiveness and knowledge sharing capabilities of the intranet in relation to the constructs of use, user satisfaction, net benefit, system quality, information quality and service quality will be

covered. The results presented some positive feedback on certain aspects and some negative response on others. As clearly mentioned in Chapter 1, the aim of the study is to assess the effectiveness of the Unisa Library intranet for knowledge sharing among staff members by applying the DeLone and McLean's model. To achieve this aim, the following five research questions were formulated to guide the study:

- Does the service quality provided by the intranet impact on the library staff's intention to use the system?
- Is the quality of information residing on the intranet generally satisfactory for use?
- Does the system quality of the intranet encourage its usage?
- Is the intranet generally effective to share knowledge among staff members?
- Does the intranet provide the anticipated net benefit for the library?

The discussion will be presented in a form of themes depicted below emanating from the research questions

### **5.2.1 Service quality and intention to use the intranet**

The theme sought to establish whether the quality of service provided by the intranet has any influence in the staff's intention to use the system. From the findings, it is clear that the intranet is indeed frequently used, the question of whether it is optimally used still remains. Users indicated that they are generally content with the service quality of the intranet as they found the intranet to be responsive to their request for knowledge to assist them to do their work tasks well. It is easily accessible anytime during working hours and necessary training was made available to be able to interact with the intranet seamlessly. Service quality received a mean score of 3.2 which is an indication that the users of the intranet were almost always satisfied with the quality of the service provided by the intranet. Literature states that a user who is experienced to use an information technology will be less anxious to use it as they are well trained. This could be the reason for a positive feedback on service quality.

The construct of *use*, which is regarded as the most appropriate and most frequently assessed construct in measuring information systems success received a mean score of 2.4. The literature points out that system use can be a good indicator of information systems success only when the use of such a system is not obligatory. Assessing whether the full functionality

of the system is being used for the intended purpose could be used as a determining or measuring factor. The low rating of the ‘*Use*’ construct has huge implications as it touches on issues of the importance of sharing knowledge using the intranet and also impacts on the quality of job outputs. This could mean that users do not see the importance of having an intranet at all as according to the responses the intranet does not meet the “fitness for purpose” standard. This is contrary to the positive feedback on service quality; the assumption is that if users are satisfied with the service quality of the intranet then the need to use the system will be high.

A number of users reported that using the intranet does not necessary increase the quality of the output on the job. This means that users do not depend on the intranet to be able to do their work. Users acknowledge that the intranet is a useful tool to share knowledge with other colleagues. However, from the low responses on the construct of ‘*Use*’, it is clear that the intranet does not necessarily enhance the job effectiveness of staff members. The underlying principles of the TAM which were discussed in Chapter Two, states that there should be a relationship between current usage, future usage, perceived usefulness and the perceived ease of use of a technology. From the above discussion, it is clear that there is no such relationship as users of the intranet do not believe that there is any real benefit from using the system as the job performance is not enhanced in any way. The empirical results of the study show that service quality does not influence the use of the intranet.

### **5.2.2 User satisfaction and information quality**

The users are generally satisfied with the performance of the intranet as a knowledge sharing tool. It was further indicated that work-related information would still be sourced from the intranet. However, it is important to note that users do not realize any improvement in terms of work output since the usage of the intranet. The overall mean score of the information quality construct is 3.2. This indicates that intranet users are somewhat satisfied with the data and content of the intranet. Information quality construct is used to assess the desirable characteristics of the intranet’s output to provide relevant, understandable, complete and up-to-date information to users. The principles of information quality are to identify important attributes in the system and the way in which the attributes affect the clients. Information

quality depends on user's perception of how the information residing in a system assists an individual in terms of considering their requirements. The results of the study indicate that information quality has a positive influence on user satisfaction. Users who are satisfied with the quality of the information are more likely to use it. The quality of information has huge implications for an organization as it impacts on decision making. However, it is interesting to note that users' contentment with the quality of the information does not translate to any benefit in terms of job enhancement. Users reported that the information on the intranet is unavailable in any other medium within the university, which is not surprising as the information on the library intranet relates to library daily operations and will only be of interest to people involved with such. Some users reported that the information on the intranet is accurate whereas an equal number reported being against that position. A great concern is that a large number of users who were neutral on whether the intranet is unavailable on any other medium or not as this can compromise the general satisfaction with the information quality aspect of the intranet.

### **5.2.3 User satisfaction and system quality**

From the 3.4 mean score, one can conclude that the respondents are satisfied with the system quality of the intranet. The intranet is connected to the main server of the university, which is responsible for the general network connections in the entire university. The features and functionalities were reported to be necessary to have on the intranet. The results indicate that system quality of the intranet positively influences user satisfaction. If the system quality is of good standard users are likely to use it due to contentment. Users further reported their satisfaction on the accessibility of the intranet, the manner in which the intranet can be operated at ease as well as its advanced capabilities.

### **5.2.4 User satisfaction and intranet's knowledge sharing capabilities**

The mean score for user satisfaction was ranked at 3.2. This indicates that the respondents are satisfied with the performance of the intranet. Generally, users indicated an interest in sharing knowledge with their colleagues using the intranet. The contradiction surfaces on the issue of other preferred means of sharing knowledge with colleagues. Platforms such as e-mails, meetings and informal discussions were listed as the most preferred means to share

knowledge. This could raise questions of culture or hoarding of information or the fact that knowledge sharing is not necessarily a challenge; the challenge is where and how it is shared. This is also confirmed by the fact that a significantly high number of users indicated they have not posted any knowledge items on the intranet in the past six months of when this study was conducted. In a space where knowledge sharing tools are available, there will be a transaction of ideas as there are always people seeking knowledge and those who own knowledge. However, the challenge could be when such users are restricted to certain means. Knowledge items are posted by a low number of users, which is rather concerning. The consolation is that items posted are related to the daily operations of the library. Sharing of knowledge on the intranet is a function collectively owned by the entire staff components as indicated on the results. This is an indication of collective ownership of keeping the intranet operational. Intranet as a site for staff members to collaborate on projects and share knowledge was ranked high.

#### **5.2.5 Anticipated net benefit of the intranet**

The intranet evaluation measure perceived to be the strongest of all the constructs on this study is the net benefit with a mean score of 3.5. This means that users believe that the intranet contributes positively to individuals and the library at large. The intranet is reported as being a good investment for the library and the real benefit is realised. The empirical results of the study indicate that there is a significant relationship between service quality, user satisfaction, system quality and information quality. This means that users realise the net benefit of the intranet, due to its service quality, system quality and information quality. This should actually encourage the use of the system which is ranked very low in this study.

### **5.3 LIMITATIONS**

The section will review a few limitations presented in the findings of this study. However, it should be noted that these limitations do not necessarily weaken the trustworthiness of the study. Respondents reported the empirical data used for analysis. This could have possible biases or preferences such as communication preferences, work habits and social preferences, which may affect the results. The number of participants in this study was lower than expected at 82 respondents out of a population of 260. Though the sample seems to be

representative of the entire population, a larger sample would have probably yielded better results and provide a clearer picture.

#### **5.4 RECOMMENDATIONS**

The following recommendations based on what was discovered and learned in the study are as follows:

- In the era of web 2.0 platforms, it is imperative that the intranet is improved to transform it into an interactive platform with improved functionalities. Libraries currently use blogs, wikis, social media, real simple syndication to expedite networking and resource sharing.
- The intranet should be a one stop platform where business activities are centralised. Knowledge should be readily available and drawn from different platforms through a click of a button where different sources are streamlined and re-routed. This will ensure that there is no duplication of knowledge from different platforms.
- All stakeholders need to be involved in the design and the implementation of the information system. These encourage ownership of the system and the intention to use.
- The administration and maintenance of the intranet need to be decentralized to allow the library sole responsibility of the tool. As it stands, the management of the intranet is done from a different department within the university, which have an impact on the turnaround time of updating the information.

#### **5.5 FUTURE RESEARCH**

This study was conducted within an ODL environment. It is proposed that a similar study be conducted in a contact institution as the perceptions and expectations of the users could be different. It will be interesting to make comparisons between an ODL environment and a contact institution in terms of how actively intranets are used as information and knowledge sharing platforms using modern technology and social media. The study focused on intranet usage from a user's point of view. A perspective of other users such as content producers or

site developers could provide an interesting and different twist to the study. In a case where the library make improvements to the current intranet, a similar study should be conducted in the same institution to establish if the results will be the same or there will be any changes in terms of user's perspective. Furthermore, if the library decides to change or develop a different knowledge sharing system, a similar study should be conducted to establish if there would be any changes in terms of viewpoints.

## **5.6 CONCLUDING REMARKS**

The focus of this study was to assess the effectiveness of the Unisa Library intranet as a knowledge sharing tool. The study was contextualised by applying the DeLone and McLean's model to evaluate the success of the intranet under investigation. The process undertaken involved theoretical development from the literature, development of an evaluation instrument (survey instrument) and testing the evaluation instrument. Multiple data sources were identified in this quantitative study. The knowledge sharing capabilities of the intranet were thoroughly tested using the six constructs of use, user satisfaction, system quality, information quality and service quality. The results from the responses received indicate that the intranet of the Unisa Library is effective as a knowledge sharing tool. Some few elements might need improvement in the near future. However, in general, the answer to the research question was realised.



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## APPENDICES

### APPENDIX 1: RESEARCH QUESTIONNAIRE

Application of the DeLone and McLean's model to assess the effectiveness of an intranet in an Open Distance Learning Library

#### SECTION A: Demographic information

1. Gender

Female	Male
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2. Age group

20 -29	30-39	40-49	50-59	60-65
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3. Designation type

Designation	Select (x)
Library Executive Team	
Process Owners Forum members	
Professional librarian	
Support staff	

4. Highest level of educational qualification (select applicable)

Qualification	Select (x)
Doctoral degree	
Masters' degree	

Honours degree	
Bachelor's degree	
Diploma	
Grade 12/Matric	
Below Grade 12/Matric	

5. Number of years in service at the Unisa Library

0-5	6 - 10	11 - 15	16 – 20	21-25	26+
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## SECTION B: intranet usage and knowledge sharing

6. How frequently do you use the intranet?

Frequency	Select (x)
Daily	
Once a week	
Once a month	
No consistent pattern	
Never	

7. The below statements seek to solicit information on your understanding of intranet usage and sharing knowledge within your organization.

**Please select one option**

**1=strongly disagree; 2=disagree; 3= neutral; 4=agree; 5=strongly agree**

7.1. I would like to share my knowledge and expertise on the intranet

Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
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7. 2. The Unisa library professional and support staff share knowledge on the intranet?

Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
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7.3 The Unisa library management share knowledge on the intranet

Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
-------------------	--	----------	--	---------	--	-------	--	----------------	--

8.1 Who is currently the main contributor of knowledge to the intranet?

Contributor	Currently
Library Executive Directors	
Library Directors	
Library Deputy Directors	
Managers	
Professional librarian	
Support staff	

8.2 In future who in your opinion should the main contributor of knowledge to the intranet?

Contributor	In future
Library Executive Directors	
Library Directors	
Library Deputy Directors	
Managers	
Professional librarian	
Support staff	

9. I understand the purpose of an intranet to be the following:

**Please rate the purpose on a scale of 1 – 5**

**1 = lowest**

**2 = low****3 = medium****4 = high****5 = highest**

	<b>Purpose</b>	<b>Rating (1-5)</b>
9.1	A site used by the library staff to share knowledge with each other	
9.2	A site for staff members to collaborate on projects	
9.3	A site for keeping up to date with the latest developments within the library	
9.4	A repository where work related documents are saved	
9.5	A site used by the Library Executive Team to communicate important information to staff	

10. Have you submitted any knowledge or items through the intranet in the past 6 months?  
Please tick.

If you answered YES, please proceed to questions 7 and 8. If you answered NO, please proceed to section C.

10.1	Yes	
10.2	No	

11. If you answered YES, how do you post knowledge or items on the intranet? Please select (X) one option.

Directly		through the webmaster		through my line Manager	
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12. What type of items have you submitted to the intranet in the past 6 months?

Updated a form	
News alerts	
procedure manual	
Gallery pictures	
Contact information	
Useful links	
Company policy	
Project plan	

13. What items would you like to see on the intranet?

Project information on active projects	
Agenda and minutes of the Executive Committee	
Project close out reports	
Agenda and minutes of the different committees within the Library	
Company annual reports	
Expert database (who is doing what)	
Knowledge database (information to help you work effectively)	
Trends reports on different fields within the library	
Gallery of new employees	
Gallery of work related events	

14. Which method/s do you often use to share work related information with colleagues  
(select applicable)

E-mail	
Meetings	
Training sessions	
Workshops	
Intranet	
Wiki	
Blog	
Telephone	
Informal discussions	
Enterprise content management (ECM)	

### SECTION C: Information quality

Information quality refers to the desirable characteristics of the intranet's output to provide relevant, understandable, complete and up to date information to the users.

**15. Please indicate the extent to which you agree with the following statements, using a scale of 1-5**

**1=strongly disagree; 2=disagree; 3= neutral; 4=agree; 5=strongly agree**

15.1	The intranet provides up to date and reliable information.	
15.2	The intranet provides sufficient information to support my work.	
15.3	The manner in which the intranet content is arranged makes it easy to understand and use	
15.4	The information on the intranet is always accurate (free from errors)	
15.5	The information on the intranet is unavailable on any other	



	platform (University intranet, ECM)	

**SECTION D: Service quality**

Service quality refers to the quality of service or support that the intranet users receive from the Information Technology division or the technical competency of the intranet.

**16. Please indicate the extent to which you agree with the following statements, using a scale of 1-5**

**1=strongly disagree; 2=disagree; 3= neutral; 4=agree; 5=strongly agree**

16.1	The content on the intranet provides me with the knowledge to do my job well	
16.2	It is easy to access the intranet anytime during working hours.	
16.3	The intranet is responsive to my requests for knowledge	
16.4	I was trained to use the intranet when I started at the Unisa Library.	

**SECTION E: User satisfaction**

User satisfaction refers to the level of satisfaction that users experience when engaging with the intranet.

**17. Please indicate the extent to which you agree with the following statements, using a scale of 1-5**

**1=strongly disagree; 2=disagree; 3= neutral; 4=agree; 5=strongly agree**

17.1 I'm satisfied with the general performance of the intranet

Strongly		Disagree		Neutral		Agree		Strongly	
----------	--	----------	--	---------	--	-------	--	----------	--

disagree								agree	
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17.2 My work output has improved since I started using the intranet.

Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
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17.3 I will continue to use the intranet to source work related information.

Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
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**SECTION F: Net benefits**

Net benefit refers to the extent to which the intranet contributes to the success of individuals, groups or the entire organization.

**18. Please indicate the extent to which you agree with the following statements, using a scale of 1-5**

**1=strongly disagree; 2=disagree; 3= neutral; 4=agree; 5=strongly agree**

18.1 The intranet saves me time as I locate information that I need for my job.

Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
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18.2 I make better work related decisions due to the information on the intranet

Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
-------------------	--	----------	--	---------	--	-------	--	----------------	--

18.3 I am more knowledgeable about the different task activities in the library

Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
-------------------	--	----------	--	---------	--	-------	--	----------------	--

18.4 The intranet has enabled me to co-ordinate my task activities easily

Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
-------------------	--	----------	--	---------	--	-------	--	----------------	--

disagree								agree	
----------	--	--	--	--	--	--	--	-------	--

18.5 There is real benefit for using the intranet

Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
-------------------	--	----------	--	---------	--	-------	--	----------------	--

18.6 In my opinion, the intranet was a good investment for the library

Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
-------------------	--	----------	--	---------	--	-------	--	----------------	--

**SECTION G: Use**

Use refers to the extent to which the staff uses the intranet.

**19. Please indicate the extent to which you agree with the following statements, using a scale of 1-5**

**1=strongly disagree; 2=disagree; 3= neutral; 4=agree; 5=strongly agree**

19.1	It is easy to post my knowledge on the intranet	
19.2	I use the intranet to refer to specific knowledge regarding my job	
19.3	The intranet enhances my effectiveness in the job	
19.4	Intranet is useful in sharing knowledge with other colleagues	
19.5	Using the intranet can increase the quality of output on my job	

**SECTION H: System quality**

System quality refers to the necessary characteristics of the intranet in terms of its flexibility, ease of use and reliability.

**20. Please indicate the extent to which you agree with the following statements, using a scale of 1-5**

**1=strongly disagree; 2=disagree; 3= neutral; 4=agree; 5=strongly agree**

20.1	The intranet has an advanced search capability that assists in retrieving information quicker	
20.2	It is easy to learn how to use the intranet	
20.3	The intranet has good connectivity (always up and running)	
20.4	It is not hard to get access to the information needed on the intranet (not too many clicks)	
20.5	The intranet has the necessary features and the functions	

**APPENDIX 2:**

**PARTICIPANT INFORMATION LEAFLET AND CONSENT FORM**

30 May 2016

**TITLE OF THE RESEARCH PROJECT:**

**APPLICATION OF DELONE AND MCLEAN'S MODEL TO ASSESS THE EFFECTIVENESS OF INTRANET IN AN OPEN DISTANCE LEARNING LIBRARY.**

**REFERENCE NUMBER: US -**

**REFERENCE NUMBER: UNISA –**

**RESEARCHER:**

**Ms. Modiehi Rammutloa**

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**SUPERVISOR:**

**Mr D Blaauw**

**Dear Prospective Participant**

My name is Modiehi Rammutloa and I am registered for a Masters degree in Information and Knowledge Management, at the University of Stellenbosch. I am conducting a study entitled: **Application of the DeLone and McLean's model to assess the effectiveness of an intranet in an Open Distance Learning library.**

My Supervisor is Mr Dewald Blaauw, a Lecturer at the Department of Information Science at the University of Stellenbosch.

You are being invited to participate in this research study. Please take time to read the information contained here, which explain the details of the study.

### **What is this research study all about?**

The aim of the study is to assess the effectiveness of the Unisa library intranet for knowledge sharing among staff members. This study will attempt to develop new findings or confirm existing findings by employing the DeLone and McLean's model to measure the effectiveness of an intranet at the Unisa library. This study is expected to collect important information that could be used by Open Distance Learning Libraries to assess the effectiveness of their intranets. Permission to obtain your contact details was requested from the Unisa Research Permission Subcommittee.

### **Why have you been invited to participate?**

You were chosen as a participant in this study due to the fact that you engage with the intranet and are part of the population targeted for the study. A census will be conducted to a population of 270 library staff members from different Directorates within the Library, Branch libraries and regional libraries.

### **What will your responsibilities be?**

Your participation in the study will contribute towards intranet policy particularly with regards to its effectiveness in an Open Distance Learning Library. The study involves a questionnaire which will be administered through a survey monkey tool used to collect data. The questions that will be asked on the questionnaire are regarding the knowledge sharing, information quality, system quality, service quality, intention to use the intranet, user satisfaction with the intranet and the net benefit of using the intranet. You will be requested to answer the questions on the questionnaire and submit electronically when done as prompted by the system. The expected duration of the questionnaire is a maximum of 15 minutes.

**If you do not agree to take part, what alternatives do you have?**

Participating in this study is voluntary and you are under no obligation to consent to participation. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a written consent form. You are free to withdraw at any time and without giving a reason. This study involves a non-identifiable questionnaire and personal data will be anonymized on the form and you will not be identifiable at all if you choose to participate in the study.

**Will you benefit from taking part in this research?**

The potential benefits of participating in this study are that you will be contributing valuable thoughts into the knowledge management body of knowledge.

**Are there any risks involved in your taking part in this research?**

The potential inconvenience foreseeable in the study is that you will be requested to take 15 minutes of your time to complete the questionnaire. There are no further potential risks, injury, harm, discomforts, significant physical and psychological risks that are foreseeable by participating in the study.

**If you do not agree to take part, what alternatives do you have?**

If by any chance you feel uncomfortable at any stage to participate, you may withdraw as you are under no obligation to participate in the study. However if you have already clicked the submission button you may not withdraw from the study.

**Who will have access to the information generated through the research?**

Any information that is obtained in connection with this study will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of anonymizing the original data to protect your privacy. The electronic copies of the results for the study will be stored by the researcher on a password protected computer for a period of 5 years from the publication of the study. The questionnaire is self-administered and there will be no need for videotaping or audio-taping involved as there will not be any interviews conducted for

the study. No information will be released to any party without your written consent. The results of the study will be published in a dissertation and your privacy will be protected since no personal information is required on the questionnaire. A Statistician, Mr Elias Makonko will have access to the data only for the purposes of statistical analysis; Mr Dewald Blaauw will also have access to the results of the study by virtue of him being my Supervisor for the study. Records that might only identify you will be available only to people working on the study unless you give permission for other people to see the records.

A journal article will be published in an accredited South African journal at a later stage and the findings from the study will be presented at a conference, the individual participants will not be identifiable. Please keep in mind that it is sometimes impossible to make an absolute guarantee of confidentiality or anonymity. Hard copies of your answers will be stored by the researcher for a period of five years in a locked cupboard/filing cabinet at the office at the Unisa Library for future research or academic purposes; electronic information will be stored on a password protected computer. Future use of the stored data will be subject to further Research Ethics Review and approval if applicable. There will not be hard copies of the questionnaire as an electronic platform will be used. However, electronic copies will be permanently deleted from the hard drive of the computer using a relevant software program.

**Will you be paid to take part in this study and are there any costs involved?**

Please note that your participation in the study is voluntary and there will not be any payment to that effect. A gate keeper's permission has been granted from the Research permission sub-committee and the final written ethics approval is pending from the Research Ethics Review Committee of Unisa. A copy of the approval letter can be obtained from the researcher if you so wish.

**Is there anything else that you should know or do?**



If you would like to be informed of the final research findings or any other information about the aspect of this study, please contact Ms Modiehi Winnie Rammutloa on 0826985943 or e-mail [rammumw@unisa.ac.za](mailto:rammumw@unisa.ac.za).

Should you have concerns about the way in which the research has been conducted, you may contact my supervisor Mr Dewald Blaauw on (021) 808 2533 or [dnblaauw@sun.ac.za](mailto:dnblaauw@sun.ac.za). Alternatively, contact the research ethics chairperson of the Unisa Research Permission subcommittee, Prof L. Labuschagne on (012) 429 6368 or [llabus@unisa.ac.za](mailto:llabus@unisa.ac.za).

Thank you for taking time to read this information sheet and for participating in this study.

Thank you.

Ms Modiehi Winnie Rammutloa

## **CONSENT TO PARTICIPATE IN THIS STUDY**

I, confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read (or had explained to me) and understood the study as explained in the information sheet.

I have had sufficient opportunity to ask questions and am prepared to participate in the study.

I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable).

I am aware that the findings of this study will be processed into a research report, journal publications and/or conference proceedings, but that my participation will be kept confidential unless otherwise specified.

Researcher's Name & Surname **Modiehi Winnie Rammutloa**