NEW POWER DYNAMICS IN ACADEMIC LIBRARIES: DEVELOPING A CRITICAL EVALUATION STRATEGY TO IMPROVE USER SATISFACTION WITH WEB 2.0/3.0 SERVICES

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DECLARATION

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I declare that

NEW POWER DYNAMICS IN ACADEMIC LIBRARIES: DEVELOPING A CRITICAL EVALUATION STRATEGY TO IMPROVE USER SATISFACTION is my own work and that all the sources used and quoted have been indicated and acknowledged by means of complete references.

Lilian Ingutia Oyieke   Date: 21/07/2015

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ABSTRACT

Web 2.0/3.0 technologies enable academic library users to generate, organize, and share content. This is transforming the traditional power dynamics between academic librarians and academic library users. Not much is known about the new power dynamics affecting relations between academic librarians and users in new technology-driven knowledge societies. One may reasonably ask how the traditional balance of power between academic librarians and library users is shifting, and what the implications are for managing these new power dynamics.

The new power dynamics surface most prominently in the evaluation of user satisfaction with e-services in academic libraries, making them suitable sites for further investigation. Academic libraries in the Kenya Libraries and Information Services Consortium (KLISC), and the Gauteng and Environs Library Consortium (GAELIC) in South Africa, were selected to study the new Web 2.0/3.0-related power dynamics in an African context.

A literature review was used to search for an appropriate theoretical framework to examine the new power dynamics in a Web 2.0/3.0 environment in academic libraries. The critical theory approach was found to be useful to analyse these power dynamics. A Critical Evaluation component was therefore added to the E-SERVQUAL Gap Analysis to evaluate user satisfaction with e-reference services, access to e-content, sharing of user-generated content, and other e-services.

The study applied an embedded mixed methods research design for an in-depth and comprehensive probe into the power dynamics underpinning user satisfaction with Web 2.0/3.0 e-service quality in the KLISC and GAELIC academic libraries. The data was collected through Website content analysis, site visits, and online questionnaires. The study found that, despite shifts in the traditional balance of power, the Web 2.0/3.0 technologies can be sources of and vehicles for empowering both academic librarians and academic library users. The Web 2.0/3.0 skills and competencies of the academic librarians and library users are essential to achieve user satisfaction with e-service quality.

The study also found that increasing awareness of the Web 2.0/3.0 technologies further increases access to user-generated content, as well as the sharing and exchange of information and knowledge. A Critical Evaluation Strategy (CES) and five Critical Success Factors (CSFs) were proposed to manage these new power dynamics with a view to improving user satisfaction with e-services, and to strengthening the academic library's democratic role in knowledge societies.

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KEYWORDS

Academic Libraries

Critical Evaluation Strategy

Critical Theory

Empowerment

E-SERVQUAL Gap Analysis

GAELIC

KLISC

Knowledge Society

Librarian Power

Mixed Methods Research

Power Dynamics

Web 2.0/3.0

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LIST OF ABBREVIATIONS

CES	Critical Evaluation Strategy
CSF	Critical Success Factors
EPDCA	Evaluate, Plan, Do, Check, Act
FAIFE	Free Access to Information and Freedom of Expression
GAELIC	Gauteng and Environs Library Consortium
GDP	Gross Domestic Product
HR	Human Resource
ICT	Information Communication Technology
IFLA	International Federation of Library Associations
IL	Information Literacy
IM	Instant Messaging
IR	Information Retrieval
IT	Information Technology
KLISC	Kenya Library and Information Services Consortium
LIB	Librarian
LIS	Library and Information Science
LISA	Library and Information Science Abstracts
LPM	Librarians Perspectives Mean
LUPM	Library Users Perspective Mean
MBA	Master of Business Administration
MLIS	Master of Library and Information Science
OPAC	Online Public Access Catalogues
PD	Primary Document
PSG	Postgraduate Student
RSS	Real Simple Syndication
SNS	Social Networking Service
SPC	Statistical Process Control
SoPK	System of Profound Knowledge
TQM	Total Quality Management
UK	United Kingdom
US	United States

CHAPTER 1

INTRODUCTION

Libraries are...essential to the functioning of a democratic society...libraries are the great symbols of the freedom of the mind.—Franklin D. Roosevelt

1.0 Introduction and Background

The biggest momentum to human progress in the 21st century is the value of information. Information is now used as an important economic resource (Moore, 1998; Webster, 2006). Organisations constantly make greater use of information to increase their efficiency, stimulate innovation, and improve effectiveness and their competitive position. Better use of information also leads to improvements in the quality of the goods and services that are produced (Castells, 2004; Kumar, 2005; Abdus & Alansari, 2013; Hwang, *et al*., 2013). In the information society there was greater emphasis on up-to-date information. There was a strong focus on the most efficient means of communicating information, hence the popularity of Information Communication Technologies (ICTs). Information may not however have much value without the knowledge to recombine it for a purpose. While information is a knowledge-generating tool, it is not knowledge itself (Todd, 2002). Information is data endowed with relevance and purpose (Drucker, 1992). Converting data into information thus requires knowledge; and knowledge, by definition, is specialised.

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Information makes the transmission of knowledge more efficient. Yet, in many cases, it is treated as a commodity that is bought or sold (UNESCO, 2005).

The ever-increasing abundance of information in our societies does not necessarily reflect sources of additional knowledge. Transforming information into knowledge presupposes an effort of reflection. For example, we may come across pieces of information circulating on the internet that may be false. In order to distinguish factual information from false information we need the reflective nature of judgment to convert information into knowledge through a verification process of facts. Therefore, the connections and differences between the concepts of information and knowledge are important, especially for the purposes of this study (see section 2.2).

Knowledge has power over the shape of human life worldwide, according to Friedson (1986). It is inherent to human culture. It embraces the facts believed to compose the world, and the proper methods and techniques by which to cope with them in order to achieve a particular end. It includes the ideas, methods and attitudes that can be used to legitimise knowledge (Davenport, 2005).

The informatisation of all sectors of the world's economies is creating a demand for knowledgeable workers (Atak & Erturgut, 2010). This shift can be described as the new information paradigm of work, which is characterised by the role played by knowledge-based intangible assets and information-intensive services (Davenport, 2005; Lor & Britz, 2007; Floridi, 2009). Informatisation, as a concept, recognises

that different societies pre-existed, that they develop in different directions, and that technology is not the only determining factor (Dick, 2002a). Social, historical and political factors play just as an important role. Informatisation also implies a critical approach to the production of information, including its regulation, availability, and access and has been used in various sectors (Cristian, 2010; Chojnicki, 2011; Decman & Vintar, 2013). Importantly for this study, informatisation involves the question of power relations in society (see section 1.3.1).

Studies of the information society summed up the changes and trends that foresaw technology's penetration of the power structure, the new economy based on knowledge, and changes in the workplace (Davenport, 2005; Moon, 2014). Knowledge is said to constitute a new form of domination over our lives by reinforcing social control (Freidson, 1986; Holste & Fields, 2010; do Nascimento Souto, 2013).

Individuals in a knowledge society (see section 1.1) are expected to possess skills that enable them to be far-sighted, to know and express themselves well, through creativity and the utilization of information technology (Hosgörür & Bilasa, 2009; North, 2011). The new ICTs and the information paradigm of work are considered the main tools for global competition and are good indicators of competitiveness (Castells, 2000). A society that is well informed and knows how to use knowledge for the betterment of that society is considered to be a 'knowledge society' (Wijitunge, 2002; Goede, 2011; Alves, 2014). A knowledge society encompasses

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the creation, distribution, and use of information for the development of human capacity and skills (UNESCO, 2005; Mansell & Tremblay,2013). Lor and Britz (2007), view a knowledge society as one that emphasises content, unlike the information society that focused on ICT networks.

1.1 The Knowledge Society

The concept of a 'knowledge society' was first coined by Robert Lane in the late 1960s. In the 1970s, Daniel Bell investigated the emergence of the knowledge society as a new pivotal axis of society emphasizing formal training in a broad intellectual context (Bell, 2010). All human knowledge is developed, transmitted, and maintained by social institutions. There are various bodies of knowledge in as much as there are different cultures and societies. For example, a distinction can be made between general knowledge, which all normal adults use in the course of their daily activities, and specialised knowledge, shared by particular groups of people who perform activities on a regular basis (Freidson, 1986). Knowledge societies have basic and distinctive characteristics.

First, knowledge societies are characterised by formal knowledge which includes publications in books, journal articles, and webpages. It is characterised by agents such as experts, professionals, or intellectuals who are often held in high esteem (Freidson, 1986; Innerarity, 2013). Formal knowledge is considered an instrument of

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power and a source for guiding and facilitating the exercise of power (Freidson, 1986; Kogan, 2005).

Second, in a knowledge society the basic economic resource is skilled workers (North, 2011). Skilled workers require high levels of formal education (Davenport, 2005). Knowledge workers require a habit of continuous learning through skilling and re-skilling (Davenport, 2005).

Third, knowledge societies possess the capabilities to identify, produce, process, transform, disseminate, and use information to build and apply knowledge to human development (Davenport, 2005). According to Moore (1998) and Webster (2006), it is possible to identify greater use of information among the general public. People use information more intensively in their activities as consumers to inform their choices between different products, to explore their entitlements to public services, and to take greater control over their personal lives. They also use information as citizens to exercise their civil rights and responsibilities (Kranich, 2001).

Fourth, in a knowledge society the workers own the tools of production (Davenport, 2005). This represents a new form of capitalist approach in which knowledge workers (employees) collectively own the means of production (Drucker, 1992). In other words, this refers to the process of informatisation of work discussed earlier (see section 1.0). Hence, true investment in a knowledge society is not just in the

tools and machines but in knowledge and the knowledge worker also (Davenport, 2005).

Fifth, a knowledge society is characterised by the development of an information sector within the economy (Moore, 1998; Webster, 2006). A significant part of the sector is concerned with the technological infrastructure but should not be viewed as an end in itself (UNESCO, 2005).

Sixth, a knowledge society is pervaded by a new culture influenced by the internet that has transformed societies through innovation, globalisation, and the decentralised concentration of work and employment (Elliott, 2009). The knowledge society has been transformed into a different kind of space filled with networked places such as urban Wi-Fi hotspots and created forms of 'public sphere (Castells, 2000).

The concept of a knowledge society appears to be connected closely with the ideas of power and empowerment (see section 2.5.2). As knowledge institutions, libraries play important roles in the knowledge society.

1.1.1 Libraries in the Knowledge Society

Libraries are at the frontiers of knowledge. However, there has been a general view in several recent reports that the brick and mortar libraries could be on the verge of

extinction (McMenemy, 2009; Berridge & Mold, 2013; Chant, 2014). For example, the recent cutbacks on libraries' expenditure by the British government have impacted negatively on the library users, with a significant fall in the number of youths visiting libraries (Bennette, 2013). Since it is generally accepted that knowledge is power, libraries have historically possessed power as the main custodians of information and knowledge resources (Wilson, 1968; Thompson, 1974). However, today they are hardly acknowledged as part of the information revolution or central to the knowledge society where the profusion of resources and the promise of a more informed citizenry require the ability to access and use information effectively (Kranich, 2001; Tise, 2012).

These are new challenges for libraries and librarians. Libraries and librarians are now more than ever expected to empower the members of their user communities through training and information skills. These skills, some argue, empower library users and make it possible for them to participate effectively in the knowledge society (Kranich, 2001; Tise, 2012).

The assumption that libraries will prosper in knowledge societies and information economies is complicated by the growth of information capitalism, which also involves the restriction and control of access to information (Dick, 2002a). For many libraries, for example, the inability to pay for internet access is a major challenge in the provision of information via e-databases and other electronic channels (Webster, 2000). Challenges like these and others limit the democratic and empowerment

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potential of libraries in knowledge societies. In other words, the empowerment of individuals and strengthening of democracy through libraries are not so straight forward.

1.1.2 Libraries and Democracy

Libraries are often described as the cornerstones of liberty and as institutions of democracy. This view has considerable support among both librarians and library users (Holtze & Rader, 2000;Kranich, 2010; Jaeger, Gorham, *et al*., 2013; Roe, 2013). If democracies need libraries, then libraries also need democracy, but the 'theory of democracy' holds an ambivalent place in the profession and discipline of Library and Information Science (LIS). A literature analysis of sources on LIS and democracy reveals that there is mostly rhetoric with little evidence linking libraries to democracy (Buschman, 2007). The literature, for example, indicates that of 227 articles published between 2000 and 2014 only three discuss the theory of democracy proposed by Jürgen Habermas. Buschman is a key contributor to the discussion on the theory of democracy in LIS. His and other contributions are discussed more fully in chapter 2. His review of democratic theory in LIS cites LIS scholars such as Lievrouw (1994), Smith (1995), Kranich (2001), Frohmann (2004), and Richards (2004), several of whom apply Habermas' ideas of democracy.

Habermas (1994) suggests that democracy can be achieved through the establishment of a formal deliberative sphere, sanitised of the power imbalances in

society as a whole, and that individuals should reach normative consensus based on the principles of reason alone. LIS scholarship (formal knowledge) has been largely silent on democratic theory, according to Buschman (2007). If a democratic and free society is to survive, libraries must ensure the preservation of its records and free and open access to this information for all its citizens, and these arguments have to rely on resources and evidence instead of rhetoric.

Knowledge will forever govern ignorance and a people who mean to be their own governors must arm themselves with the power which knowledge gives. Dervin (1994) affirms that access to quality and relevant information is central to the working of a good democracy. By building diverse voices, perspectives, and arguments into library collections and services, librarians can keep the democratic ideals alive through a variety of voices and perspectives (Buckland, 2003). The Lyon Declaration principles (2014) reinforce the significance of a knowledge society. The access to information, ability to understand, use, and share it, is necessary for the promotion of sustainable development and democratic societies. In this context, access to information supports development by empowering citizens when they:

- exercise their human rights;
- are economically active, productive and innovative;
- learn and apply new skills;

- take part in decision-making and participate in an active and engaged civil society; and

- ensure accountability, transparency, good governance, participation and empowerment (Lyon Declaration IFLA, 2014).

These principles and activities apply to libraries more generally, but academic libraries, through their supporting roles in educating generations of prospective leaders and citizens, are in a prime position to strengthen democracy and empowerment.

1.2 Academic Libraries and Democracy

Academic libraries form an essential part of academic institutions. Their role exceeds the basic function of depositories of published information resources. Academic libraries have traditionally enabled and facilitated the exchange and growth of information, knowledge, and a culture of learning among faculty, students, and the general public. In this sense, academic libraries represent a focal point of academic life and as such also serve a wider societal purpose of bringing together people to share information and exchange ideas (Abram, 2008; Anfinnsen, *et al*., 2011; Brantley, 2011).

Buschman (2003:47) argues that "academic libraries can be defined as public spheres, through their functions as custodians of collections that have the potential to re-establish democratic processes". The idea of a public sphere, originally

conceptualised by Habermas, refers to a realm of an individual's social life in which public opinion can be formed on all matters oriented to the common good and where access is guaranteed to all citizens (Habermas, 1989; Sinekapova, 2006). In a large public body, such as a university, access to information to form opinions and strengthen the public sphere principally involves the academic library.

Academic libraries as public spheres are however affected by the increasing commodification of information that impact on their democratic functions, such as access to the internet (Fleissner, 2009). The ideas of academic libraries promoting a community-in-the-making and a public empowered to speak for itself (Buschman, 2003)requires a fuller discussion of critical theory, which is provided in chapter 2. What is important to note here is that the means for transmitting the kind of information that Habermas and Buschman argue as necessary to strengthen democracy and empowerment are available today in the new technologies.

1.2.1 New Technologies, Public Spheres, and Academic Libraries

New technologies are making knowledge transfers in academic libraries in real-time. Web 2.0/3.0 technologies represent new forms of public spheres that embrace academic libraries (or that make academic libraries new kinds of public spheres), and in which both academic librarians and users are participating. When library users log onto Facebook, Twitter, wikis, or blogs and engage in discussions with librarians, their friends and followers, they are in fact participating in this new

technology-driven public sphere. At the same time, academic librarians today use various Web 2.0/3.0 technologies to engage with their library users and colleagues, and for their information work. The uses of the chat master or online reference librarian, wikis, or blogs are all examples of the academic librarians' and the academic library users' participation in the new technology-driven public sphere.

A question that arises in the process of participating in the new Web 2.0/3.0 technology-driven public sphere is how the traditional balance of power between the academic librarian and the user is shifting, and what are the implications for managing the new power dynamics?

As academic librarians focus more on e-service provision and academic libraries view themselves as service organisations in this new environment, it has become important for them to evaluate e-service quality. It is in the evaluation of user satisfaction with e-service via Web 2.0/3.0 and open-source software that the new dynamics of empowerment and power struggles come to the surface in academic libraries, and present themselves for scholarly investigation.

1.3 E-Service Quality and Empowerment

Service quality has been recognised as a key factor in building competitive advantage in service organisations (Quinn, 2007; Sahu, 2007; Amin, Ras, *et al.*, 2008; Rigopoulou, *et al.*, 2008; Wang, 2008; Ahmed & Shoeb, 2009; Brochado, 2009; Chang, *et al.*, 2009). Today, many organisations are competing on the basis of

service offerings (Grönroos, 2000). As service organizations, academic libraries face similar challenges, including that of providing not only quality print resources but also quality e-services.

E-service quality is an evaluation of user satisfaction with the Web 2.0/3.0 services based on the E-SERVQUAL model (Parasuraman, *et al*., 1985; Parasuraman, *et al*., 2005). E-service quality presents both challenges and opportunities. Librarians in the 21st century need to understand the complexity of e-service quality in information services and to develop new approaches to e-service evaluation. The role of library users cannot be over-emphasised since they play a significant role in the evaluation of the library resources and e-services, as well as the professional services offered by librarians. This situation differs from the traditional one where librarians exercised their power over library users in the provision of information resources and information services. Wilson (1968) identified two kinds of librarian power, namely exploitative and descriptive. For example, reference services traditionally involved direct (face-to-face) contact between the reference librarian and the library user in which the reference librarian exercised a kind of exploitative power that Wilson explains as a "power that could supply the best reading resources to meet the needs of any library user" (1968:34).

The availability of new ICTs in academic libraries today facilitates virtual reference services where users and librarians communicate remotely through various Web 2.0/3.0 technologies that include Instant Messaging (IM), Facebook, Twitter, Online

Chat, and others. At the same time, these ICTs provide library users with what Wilson (1968:25) calls exploitative power. For example, in a Web 2.0/3.0 environment library users with information skills can apply their exploitative power to procure the best reading resources to meet their needs without the assistance of the reference librarian.

At the same time, the Web 2.0/3.0 technologies empower academic library users who, from remote locations, have access to library services and information resources (Aqil, *et al*., 2012).This kind of user empowerment is perceived by academic librarians as diminishing their power as intermediaries in the information seeking and retrieval process (Liu, 2008). Prior to the Web 2.0/3.0 technologies, academic librarians had a greater degree of power such as limiting services to opening hours as determined by library management. Situations like these, where academic library users rely on librarians for access to information, can be described as examples of *'librarian power'*.

1.3.1 Librarian Power and User Empowerment

One of the most significant contributions of the Web 2.0/3.0 technologies to democracy is their ability to assemble a public around technical networks that join up individuals scattered over wide geographical areas (Feenberg, 2009). The underlying theoretical perspective is that societies are organised around human processes structured by relationships such as the means of production, power, and empowerment (Castells, 2004; UNESCO, 2005; Mansell &Tremblay, 2013).The

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means of production in the new informational mode of development include professional workers such as librarians (Davenport, 2005; UNESCO, 2005; Mansell & Tremblay, 2013). Although libraries and librarians support the idea of providing equal access to information and knowledge to promote democracy, they should possess the power to do so. As recent studies have shown in other sectors, empowerment is necessary also for librarians as professional employees (Rae, 2013; Zeglat, *et al*., 2014). In the new Web 2.0/3.0 technology-driven environment, librarian empowerment would imply retaining control over decisions regarding work-related situations (Sarwar & Khalid, 2011).

Traditionally, the power of librarians as professionals has been their expertise, skills, and knowledge of information resources and of library user needs (Wilson, 1968; Thompson, 1974). *'Librarian power'* was evident in descriptive and exploitative control, and the way that librarians determined and selected various library service offerings for their users (Wilson, 1968; Friedson, 1986). For example, information literacy skills, confidential access to the net, and censorship issues were considered when designing services (Thompson, 1974, UNESCO, 2005; Mansell &Tremblay, 2013). They also had power as gatekeepers and as intermediaries between the library users and information resources. The academic librarians' power relations with users were based strongly on the special kind of knowledge that they possessed and applied (Kogan, 2005). Foucault (1982: 789) defines power as a relation, and not a thing:

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> [A] power relationship can only be articulated on the basis of two elements which are indispensable if it is really to be a power relationship: that 'the other' (the one over whom power is exercised) be thoroughly recognized and maintained to the very end as a person who acts; and that, faced with a relationship of power, a whole field of responses, reactions, results, and possible inventions may open up.

He further identifies various forms of power including sovereign power, disciplinary power, pastoral power, and power-knowledge. This study finds Foucault's view of power-knowledge useful. Mechanisms of power produce different types of knowledge that can collate information on people's activities and existence. According to Foucault, power is also inherently emancipatory, and in this instance power relates to the new knowledge relations between academic librarians and library users that are emerging in a Web 2.0/3.0 environment**.**

The academic librarian's power-knowledge appears to be increasingly under threat in the new technology-driven environment, and this can destabilize relations with library users. New shifts in empowerment and disempowerment are challenging traditional librarian power, and producing new power dynamics. Whereas library users have for a long time depended on librarians to gain access to information sources, which were predominantly in print format new technologies that enable users to both access and store information electronically require a review of their analysis of librarian power (Wilson, 1968; Thompson, 1974).

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The availability of the Web 2.0/3.0 technologies to library users is therefore a source of user empowerment, and appears to challenge *'librarian power'*. In other words, Web 2.0/3.0 technologies have empowering effects for academic library users. They provide alternative means of accessing information resources through sharing links to open access e-databases, as well as bits and pieces of knowledge that can be readily obtained through user participation on various Web 2.0/3.0 platforms. This raises the question on whether indeed librarians are disempowered, making it worth investigating how they can adapt to the new environment to negotiate these power shifts, and how they can and are re-positioning themselves in this changing environment.

In sum, little if anything is known about the new power dynamics affecting relations between academic librarians and users in Web 2.0/3.0 technology-driven knowledge societies. However, the new power dynamics can be analysed in an evaluation of user satisfaction with e-services at academic libraries, which is where they surface most prominently. In Africa there are few studies that have assessed Web 2.0/3.0e-service quality in academic libraries. The Kenya Libraries and Information Services Consortium (KLISC) and the Gauteng and Environs Library Consortium (GAELIC) are suitable sites for investigating these developments in an African context (see sections 1.5 and 4.2).

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1.4 Research Questions

Against the background presented above, the study poses the following principal research question: **How can a study of the new power dynamics in a Web2.0/3.0 environment help to improve user satisfaction with e-service quality, and to strengthen the democratic roles of academic libraries?**

To respond this question the study will seek answers for the following sub-questions:

1. What are the limitations of the E-SERVQUAL gap analysis framework in evaluating user satisfaction with e-service quality?

2. Which theoretical framework is suitable to study the new power dynamics affecting relations between academic librarians and library users in Web 2.0/3.0 technology-driven knowledge societies?

3. How can a Critical Evaluation Strategy be applied to manage the new power dynamics underlying user satisfaction?

4. Which Critical Success Factors are necessary for an effective Critical Evaluation Strategy to improve user satisfaction, and to strengthen the democratic roles of academic libraries?

1.5 Methodology

The methodology is presented in greater detail in chapter 4, and simply outlined here. This study applies the mixed methods research design. The mixed methods research design is selected for this study because it will allow the researcher to mix

and combine quantitative and qualitative research techniques, methods, approaches, concepts, or language into a single study (Johnson & Onwuegbuzie, 2004). For example, the study will use E-SERVQUAL gap analysis framework as a core component in the evaluation of the Web 2.0/3.0 e-service quality in KLISC and GAELIC academic libraries. The framework will be used to evaluate the E-SERVQUAL factors, to identify best performing factors, and those that need to be improved. However, the study will also apply supplementary strategies to qualitative data (see section 4.1). The qualitative data will be derived from critical theory-based open-ended questions that probe the power dynamics underlying user satisfaction with Web 2.0/3.0 e-service quality (see section 2.5.2).

1.5.1 Research Sites

The research sites for this study are drawn from the Kenya Libraries and Information Services Consortium (KLISC), and the Gauteng and Environs Library Consortium (GAELIC) and are limited to their academic libraries (see section 4.2).

The researcher selected the two countries based on two reasons. One is the capacity and ability of their academic librarians to apply the findings of this study. The other is the researcher's familiarity with the state of technology-driven library services in both countries. The findings should therefore make significant contributions to the further development of consortia in both countries.

1.5.2 Target Groups

The target groups in this study are professional librarians and postgraduate students in selected KLISC and GAELIC academic libraries. Professional librarians were selected for this study because they are experts equipped with formal knowledge and skills relevant for knowledge societies (Freidson, 1986). They exercise '*librarian power*'based on their possession of professional knowledge, and its application to library services. According to Wilson (1968) and Thompson (1974), traditional librarians were considered 'elite' because of their special attributes, and they played a key role in library user empowerment. Since librarians have had to adapt to the Web 2.0/3.0 technologies, they are a suitable target group for this study.

Postgraduate students at KLISC and GAELIC institutions were selected as users for this study because they continually need to update their information skills for research purposes. In addition, each postgraduate student tends to focus on the information resources relevant to a selected topic. For these reasons, the postgraduate students are frequent users of a subject-related e-databases and print resources, and they also use Web 2.0/3.0 technologies such as blogs, Facebook, or Twitter for several tasks related to their research. They are therefore a suitable target group for this study.

1.5.3 Data Collection and Analysis

Empirical data will be collected from the sample through a distribution of self-administered online questionnaires comprising questions from an adapted E-

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SERVQUAL instrument, site visits, and the analysis of the selected libraries' websites. The quantitative data will be coded, tabulated, and analysed using MS Excel. The analysis will apply scores on each factor. A calculation of the gap analysis based on perceptions only measures of central tendency. The difference between the librarians' perceptions and library user perceptions of each E-SERVQUAL dimension will be calculated, and the resulting difference identified as the service quality gap. The perceptions-only approach (see section 3.4.1.2) is a modification of the SERVQUAL gap analysis model (Shahin & Samea 2010). The descriptive data will be displayed using tables, graphs, and charts. The section with qualitative data will be analysed using ATLAS.ti, a qualitative software analysis package. The data will be categorised to show frequencies of occurrences within codes and themes. It will also map relations within themes and codes based on the qualitative responses (see chapter 4).

1.6 Benefits of the Study

This study is both descriptive and exploratory in nature. It specifically:

- provides useful information on the implications of Web 2.0/3.0 technologies for academic libraries;

- identifies the limitations of the E-SERVQUAL gap analysis framework for evaluating user satisfaction with Web 2.0/3.0 e-service quality;

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- tests the critical theory concepts of power and empowerment in an empirical LIS setting by evaluating their effects on user satisfaction with Web 2.0/3.0 e-service quality;

- introduces the critical evaluation approach to complement the limitations of E-SEVQUAL gap analysis framework for evaluating user satisfaction with Web 2.0/3.0 e-service quality; and

- proposes a strategy for managing the new power dynamics underlying user satisfaction with Web 2.0/3.0 e-services.

1.7 Limitations of the Study

The limitations are the following:

- The study focuses on five selected academic libraries in KLISC and GAELIC. These are not the only academic libraries in Kenya and South Africa using the Web 2.0/3.0 technologies, and the findings are not universally applicable although they may be useful in other academic libraries in developing countries.

- This study was designed to provide in-depth information on user satisfaction with Web 2.0 e-service quality in selected KLISC and GAELIC academic libraries, and to test the versatility of the E-SERVQUAL Gap Analysis framework. The methodology adapts the E-SERVQUAL Gap Analysis framework by adding a critical-theory based component to provide in-depth understanding on the power dynamics underpinning user satisfaction with e-service quality.

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- The study was limited to two target groups. One target group consists of post-graduate students in Information Science and MBA degree programs. Another target group consists of professional librarians at the five research sites. A related limitation of this study is that other groups of library users such as undergraduate students and faculty are excluded. The findings are limited to power dynamics between academic librarians and postgraduate students.

1.8 Definitions of Terms Used in this Study

This section presents a short description of the terms that appear frequently throughout the study to provide a clear understanding of their meaning.

Academic Library: An academic library is a library which serves an institution of higher learning, such as a college or a university (Feather & Sturges, 1997). Academic libraries are located on the campuses of colleges and universities and primarily serve the students and faculty of those academic institutions.

Affect of Service: Affect of service is defined as the sum total of feelings, perceptions or emotions, positive or negative, a service user gets while using an e-service (Barry & Oliver, 1996; Leys, 2011). It can be redefined in terms of user satisfaction or dissatisfaction. Affect will cause or lead to certain effects which can yield negative (dissatisfaction) or positive (satisfaction) outcomes that impact on the

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library user perceptions of e-service quality in academic libraries (Sulek & Hensley, 2010).

Critical Evaluation Strategy: Critical Evaluation Strategy is an operational concept developed by the researcher for the purposes of this study. It is based on critical theory concepts, and is a tool to manage the new power dynamics underlying user satisfaction and dissatisfaction with Web 2.0/3.0 e-service quality (see chapter 7).

Democracy: Democracy refers to collective decision making by groups (Christiano, 2008). It is a justified form of education or development and comes out of a system in which individuals are made to think for themselves through access to information and knowledge (Harrison, 2005). Academic libraries may contribute to democracy by providing access to information and knowledge resources for the empowerment of their library users (Line, 2003; Jain, 2012).

Disempowerment (sees also empowerment and power dynamics): Disempowerment is a concept adapted from the concept of empowerment for use by the researcher. Disempowerment refers to a situation where an individual experiences a reduced amount of control over a situation (see section 5.5.2).User disempowerment can be the result of lack of library skills training opportunities, access to information networks, or resources (see section 6.5.4).

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Empowerment (see also power dynamics and disempowerment): Empowerment is central to the work of improving human lives and thus an important paradigm today (Prujit & Yerkes, 2013). It carries the idea that people should be enabled to take control of themselves (Rowlands, 1995; Prujit & Yerkes, 2013).A changing information environment with enablers such as Web 2.0/3.0 technologies, are a source of empowerment to both academic librarians and library users. On one hand, library users are empowered through access to information resources by using Web 2.0/3.0 technologies and information literacy (IL) skills training, and librarians are empowered through re-skilling and sharing their librarian power with the library users.

E-Service Quality: "E-service qualityis defined broadly to encompass all phases of a customer's interactions with a Website: the extent to which a Web site facilitates efficient and effective shopping, purchasing, and delivery." (Parasuraman, *et al*., 2005: 217).

Gap Analysis: Gap analysis refers to a systematic tabulation of all the known requirements of consumers in a particular category of products, together with a cross-listing of all the features provided by existing products to satisfy these requirements. This study uses a 'perceptions only' gap analysis approach. It is calculated as the difference between librarian perceptions and library user perceptions of e-service quality factors (Shahin & Samea, 2010).

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Librarian Power (see also Power Dynamics): Library power is a philosophy of librarianship that explains the origins of '*librarian power*' (Thompson, 1974). A librarian possesses power because of his/her professional knowledge and skills, and credibility (Friedson, 1986). A librarian can also share '*librarian power*' with library users through the provision of quality services that empower them.

Library User Satisfaction/ Dissatisfaction: User satisfaction refers to the positive outcome of e-service encounters that a customer (library user) experiences and that yields positive effects and fulfilment (Deming, 2002; Sulek & Hensley, 2010). User dissatisfaction refers to the negative outcome a library user experiences with an e-service encounter. User dissatisfaction with Web 2.0/3.0 e-service quality in academic libraries is linked to user disempowerment.

Power Dynamics (see also Power, Empowerment and Disempowerment): Power dynamics is a concept adapted for use by the researcher. It brings together the concepts of power, empowerment, and disempowerment in the relations between library users and academic librarians in a Web 2.0/3.0 environment.

Service Delivery Process: The service delivery process begins when the customer first interacts with the service organization or system, and ends when the delivery of the desired service is completed and the customer exits the process (Grönroos, 2007). To function effectively for the library users, the entire sequence of library

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activities should be coordinated and managed as a whole, with the emphasis on including the resources and steps that produce value for the customer.

Web 2.0 and 3.0: "Web 2.0 is a platform, in which software is built upon the Web and consists of Web services that allow users to create, share, disseminate, and consume information and knowledge" (O'Reily, 2007). Web 3.0is defined as a 'smart Web' capable of understanding the information seeking patterns of individual users from their browsing history, and knowledge sharing activities on Web 2.0 platforms and automatically delivers 'relevant content' to each user (Maxwell, 2014). This study focuses on Web 2.0/3.0 technologies, including Facebook, Twitter, blogs, IM, and other forms of social media.

1.9 Outline of Chapters

The following is an outline of the chapters that are presented in this study.

Chapter 1: Introduction

This chapter introduces the study and provides a background to the changing information and knowledge environment that is influenced by new ICTs such as Web 2.0/3.0 technologies, and the idea of knowledge societies. The chapter introduces the new power dynamics connected with these technologies that are changing relations between academic librarians and users.

Chapter 2: Theoretical contexts

The chapter is a discussion of the theoretical contexts of this study. It presents the theoretical framework of the study, including theories of information and technology that are applicable to this study. A critical theory approach explains concepts such as ontology and epistemology and their development and use in LIS research. The significance of the Web 2.0/3.0 technologies is discussed in relation to the use of information and technology in academic libraries.

Chapter 3: Service Quality Discourse

The chapter is a literature review of service quality. It analyses concepts of service quality, such as customer expectations and perceptions and their importance in relation to academic libraries. It gives the reader insight into service quality models, including the E-SERVQUAL gap analysis framework and its adaptation to evaluating Web 2.0/3.0 e-service quality in academic libraries.

Chapter 4: Methodology

The chapter describes the research design of the study, which includes the research sites, target groups, sampling techniques, and the data collection methods. It identifies the steps taken to ensure validity and reliability.

Chapter 5: Data Analysis

The chapter presents an analysis of quantitative data obtained using E-SERVQUAL gap analysis framework and the qualitative data from the critical evaluation

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approach. Information collected from the questionnaires, site visits, and relevant documentation is analysed and presented.

Chapter 6: Data Interpretation

This chapter presents a discussion of the data presented in the previous chapter and makes informed interpretations based on the research questions. It gives reasons for the general patterns observed in the quantitative and qualitative data. It provides insights on librarian power and user empowerment and their effects on user satisfaction with Web 2.0/3.0 e-service quality in selected KLISC and GAELIC academic libraries.

Chapter 7: Implementing a Critical Evaluation Strategy

This chapter presents a Critical Evaluation Strategy for the Web 2.0/3.0 technologies in selected KLISC and GAELIC academic libraries. The strategy is based on the quantitative and qualitative data. It is a new a tool for managing the new power dynamics in academic libraries.

Chapter 8: Conclusion

This chapter presents the study's findings, limitations, lessons, recommendations, and suggestions for further research.

1.10 Summary

This chapter introduced the study by providing the background to the study and discussing the issues that led to the statement of the problem. The chapter identified the methodology for the study including the target groups and data collection methods. The chapter also highlighted the significance of the study and its benefits to LIS scholarship and the academic librarians. The next chapter discusses the theoretical contexts of this study.

CHAPTER 2

THEORETICAL CONTEXTS

The dissemination of information is one of the most basic social activities, and one of the most essential.--Jesse Shera.

2.0 Introduction

The previous chapter introduced the study and highlighted the significance of technology-driven library services by raising the primary and secondary research questions (see section 1.4). This chapter presents a discussion of information and technology through a detailed exposition of the key theoretical concepts relevant to this study. It also examines the philosophical relationships in select paradigms in LIS. The discussion focuses on the following:

- Etymological and other approaches to defining the key concepts of 'information' and 'technology'.

- Philosophical and theoretical approaches to information and technology in LIS through an examination of their foundational underpinnings in:

  - epistemology;

  - ontology; and

  - critical theory.

- An overview of the Web 2.0/3.0 technologies in academic libraries.

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2.1 Etymological Origins of Information

The concept of information has been surrounded by debates regarding its nature in the form of the question 'information: what is it?' There are different approaches to defining the concept of information. One way to respond to the question on what information is, would be to look more closely at its etymological origins (Capurro, 2009; Nafría, 2010). The origin of the concept of information lies in the Latin *informatio* and *forma,* indicating that which human knowledge makes possible (Melnikov, *et al*., 2008; Capurro, 2009; Nafría, 2010). *Forma* is a translation of the Greek *eidos* (form), which Plato and Aristotle refer to as fundamental characteristics of everything that exists (De Mul, 1999; Capurro, 2009). In the field of LIS, information has been commonly perceived as an abstract and multifaceted phenomenon of study. The philosophy of information has enjoyed ongoing discussion in the literature (van der veer Martens, 2015).

A philosophical approach to information should therefore take into consideration the concepts that structure our thinking and presuppositions about the purpose, forms, and validity of information (Benoît, 2002). While it may be accepted that information is intangible, information in LIS is also considered as a tangible physical object. Information objects are widely available today due to technological advancements in information representation. The subject-object relationship between human beings and information therefore has etymological roots.

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2.2 The Concept of Information: An Overview

Two main directions have been identified in defining the concept of information. One direction points towards its very remote roots, which include the different meanings it has acquired until the present day (Aguado, 2009); the other direction points towards the various meanings given by different groups of people (Capurro & Hjørland, 2003). On the other hand, LIS professionals apply this concept daily as they serve their customers or users (Huang, 2006). For these reasons, a closer analysis becomes necessary.

Information has been theorised from a number of perspectives across different disciplines. This is evidenced by the varied perspectives of information and even of Information Science (Pervez, 2009). The diversity of the conceptions of information can be summarised as follows:

- Information as data. This refers to a resource that can be stored in a physical format (Pervez, 2009). In LIS, such data can be represented through key library tools such as the MARC 21 format for bibliographic control (Beilharz, 1991; Rowley & Farrow, 2002; Ghaebi, *et al*., 2010). MARC formats have facilitated the exchange of bibliographic information in libraries globally.

- Information as a medium, or as formal, or as codified knowledge. This representation of information implies personal knowledge that is subjective (Snyman, 2004; Roknuzzaman & Umemoto, 2009). In LIS, this points to aspects of 'information value' as proposed by Von Wright (1963) who states

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that information may be good for a number of purposes and may include a joke, a narrative, or knowledge. Library services need to shift from such a mental model (where information equals power) and embrace a view that promotes equal sharing of information between librarians and the library users (Walker, 2014). The problem of such a simplistic view runs counter to the view of other more serious LIS thinkers, and counter to the democratic role for information and libraries.

Some scholars have made an effort to introduce order to this terminological chaos by developing classifications of approaches to information. Nafría (2010) presents a helpful classification of approaches to information namely:

- the dimensional approach;

- the domain-specific approach; and

- the epistemological-ontological approach.

This classification of terminology may be useful for LIS scholars particularly within the multidisciplinary environments in which information is stored and disseminated. The epistemological and ontological approaches are discussed in detail later (see sections 2.4.1 and 2.4.2). Another classification is that of Floridi (2009) who identifies the mathematical and the semantic approaches.

2.2.1 The Mathematical Approach to Information

In brief, it gives us the technical approach to the concept of information. The mathematical theory of information, developed in the 1940s by Claude Shannon,

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provides the basis for this definition (Melnikov, *et al*., 2008; Nafría, 2010). Its fundamental conceptual categories include the message, source, channel, and receiver with corresponding coding (transmitting) and decoding (receiving) devices as the structures common to all communication. This view overlaps with some of the paradigms of information mentioned earlier (Capurro, 1992).

In summary, information exhibits two peculiarities in the theory of information. One, that it is technology-oriented in character and two, that it is associated with a general model for communication that represents the mechanical transferring of signal structures (Kramer-Friedrich, 1986). More relevant to this study is the semantic approach to information.

2.2.2 The Semantic Approach to Information

Semantic information is mostly understood in terms of content about a referent. In other words, semantic information involves one thing carrying information about the other (Ostalé, 2009). In this definition, referent implies that one is to understand the way in which semantic information addresses a topic. Semantically, information may refer to the following:

- information about something;
- information for something;
- information as something; and
- information in something.

Informing therefore carries the sense of generally conveying or telling someone about something (Buckland, 1991; Liz, 2009). Therefore, the semantic value of information is dependent on the level of experience of the user (Heidegger, 1977).

Buckland (1999) and Campos (2006) distinguish information as a cognitive process, information as knowledge imparted, and information as signifying objects such as data or documents. These suggest that information basically means getting informed, hence reducing ignorance and uncertainty. In everyday use of language, the concept of information denotes "both a certain state of affairs in reality and the opportunity the receiver of the information obtains to gain a certain knowledge or insight into this state of affairs" (De Mul, 1999:79). Information cannot be understood except through the practices within which it is constructed by the members of certain specific professionals in their work. According to Castells (2000), information is a key concept in sociology, political science, and economics.

2.2.3 Semantic Information Use in Libraries

The concept of information is strategic in another more significant way in that it is connected with libraries, which generally serve a wide diversity of patrons. The encouragement of access to information is often cited as a central value for information professionals (Dervin, 1994). Research characterising the library patrons' diverse information needs and uses has evolved from a focus on the catalogue systems to a focus on the perspectives and experiences of individual users

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(Dumont, *et al.*, 2005; Fujita, 2003; Gannon-Leary, *et al.*, 2006; Pislyakov, 2005; Reed & Tanner, 2001). It is important for librarians to understand that library users originate from different social and academic backgrounds and may bring their different ideologies into libraries as they seek information (Agre, 1995).

Basic research on information needs and user behaviour by Kulthau (1994) has continued to flourish even with the advent of new ICTs. The diversity of user cultures in the study of information brings together disciplines in science and the humanities, which leads to an interdisciplinary exploration not restricted to a research territory that can claim to have achieved a comprehensive understanding of information (Machlup & Mansfield, 1983). This implies the need for LIS research to embrace a multidisciplinary approach towards information, its use, and users.

2.2.4 Semantic Information and the User's Needs

Attempts have been made to define information as a formal term relative to documentation and information work. Some scholars have also defined information as some measurable quantity, corresponding to questions such as how much information was retrieved by each search. Information retrieval models such as Ingwersen's model of the process of information retrieval (IR) (Ingwersen, 1996) and Saracevic's model of the IR process (Saracevic, 1997) seek to clarify exactly what information means to individual users. Both Ingwersen and Saracevic's models share commonalities such as the 'user's cognitive space', 'environmental factors', and how the 'social or organisational environment' resemble the 'person in context'.

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Ingwersen (1996) clarifies a number of other elements including the functions of the information user, the document author, the intermediary, the interface, and the IR system. Ingwersen's approach provides a holistic view of all interactive communication processes that occur during information transfer (Ingwersen, 1996). These processes are the result of cognitive models of the domain of interest at that particular point (Wilson, 1999). Thus, users have models of their work-tasks, information needs, or goals, which are usually in their minds but often capable of being divulged.

However, these models do not give a concise definition of what information really is. Capurro and Hjørland (2003:350) argue that when using the concept of information in Information Science, "one should always keep in mind that information is what is informative for a given person. What is informative depends on the interpretative needs and skills of the individual." Beyond these debates about the meanings of information are applications of information to phrases and concepts with wider connotations.

2.2.5 Information as a Descriptive Adjective
Information has also been used as a descriptive adjective giving rise to many other concepts including the information age, information society, information economy, information capitalism, information superhighway, information revolution, and information technology. The use of information in phrases like information retrieval

and information centres has contributed to raising the public perception of library and documentation work (Capurro & Hjørland, 2003).

Information is also understood as that which is capable of yielding knowledge (Dretske, 1981), linking it closely to human knowledge or more generally to cognitive systems (Vakarelov, 2010). Capurro (2009:134) argues that "cognitive systems capable of creating meaning are different from mere information processing ones such as computers that can only manipulate symbols". One may infer from this and from the earlier discussion on semantic information use (see section 2.2.4) that the user's cognitive space is a key aspect of the information retrieval processes. This underscores the importance of user cognitive spaces, and their implications for the ontological approaches in LIS (see section 2.4.2).

Today, information and communication technology (ICT) are basic phenomena of every human society, and have probably contributed most significantly to raising public awareness about information (Capurro & Hjørland, 2003; Elyakov, 2008). The rise of information technology and its global impacts have, for example, promoted the development of an information society (Duff, 1998; Capurro, 2000a; Fuchs, 2010b). Information is now considered as a basic condition for economic development together with capital, labour, and raw material (Elyakov, 2010). Capurro and Hjørland (2003) explain the development and widespread use of computer networks, and the emergence of Information Science as a discipline in the 1950s is evidence of this focus.

What makes information even more important today are its digital features, which has made the impact of information technology on libraries a contentious issue (Floridi, 2007). Capurro's (2009:127) claim that there is a reawakening of "the objective meaning of information within the context of technology that is referred to as information technology" compels a closer look at this concept.

2.3 Etymological Approach to Technology

Technology has its origins in the Greek word *technologia*. The etymological definition of technology lies in the discussions of *téchnē* (Angier, 2010). *Technologia* is a combination of the two Greek words *téchnē* and *logia*. Technology is defined as the usage and knowledge of tools, techniques, crafts, systems, or methods of organisation in order to solve a problem or serve some purpose (Angier, 2010; Rutsky, 1999). This definition has relevance to the current usage of technology.

2.3.1 The Concept of Technology

The technology discourse plays a central role in making technology an unquestionable 'good' (Noble, 1999). By embodying one or more ideas, every technology provides a permanent record of this knowledge, which is an expression of human thought far more durable and therefore accessible than any material conception. Technology, like information, is defined as a phenomenon. Dusek (2006:32-33) defines technology using three approaches:

- hardware;

- rules; and

- system.

In defining technology as hardware, reference is given to tools and machines. This definition is discussed later in relation to the essence of technology. Technology is defined as something more than merely a 'machination' of people. There should not be a limitation in "addressing the role played by man in the handling of machine technology" (Belu & Feenberg, 2003:3). In LIS, technology as hardware may refer to the computers and information communications infrastructure through which data is transmitted from a sender to a recipient. Sender and recipient define the human involvement, while channel may be some form of technology, for example, the internet.

Defining technology as rules involves patterns of means-end relationships. When technology is viewed as a means to an end it refers to what is called instrumentalism (Feenberg & Hanks, 2010). This definition takes into account the instrumental theory of technology (Jackson, 2010). According to Feenberg (2009b), emphasis is placed on a person's use of technology rather than on its design, suggesting that one must look at use (rather than design) when making a value judgment. In other words, it is not that a technology is inherently bad or good; it's that people are using the technology either poorly or well.

The instrumental theory of technology is the most widely accepted view of technology (Gruber, 2004). It is based on the common sense idea that technologies are tools standing ready to serve the purposes of their users (Aunger, 2010). This theory defines technology as a human activity thereby giving it an anthropological definition (Ibáñez-Noé, 1995; Fitzsimons, 2002).

Misa (2003:3) argues that we should try to understand technologies not only as "embodiments of human desires and ambitions, but also as solutions to complex problems, as interacting networks and systems". Libraries are similar systems and networks that embody democratic ambitions that present solutions to information problems.

Technology, as a system, asks therefore whether technology outside of a human context of use and understanding really functions as technology at all (Dusek, 2006). When technology is defined as "the systematic application of scientific or other organized knowledge to practical tasks" (Ritcher, 1982:7), it therefore connects hardware as well as the "human skills and organisation that are needed to operate and maintain it" (Dusek, 2006:33). In other words, in order for a piece of hardware to be technology it needs to be placed in the context of people who use it, maintain it, and repair it. In LIS, technology as a system may refer to the various library systems including the widely-used Online Public Access Catalogues (OPACs) that imply human involvement, namely by librarians and users.

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Figure 1 presents a typology of these approaches to understanding technology, including technology as hardware, technology as rules, and technology as information systems.
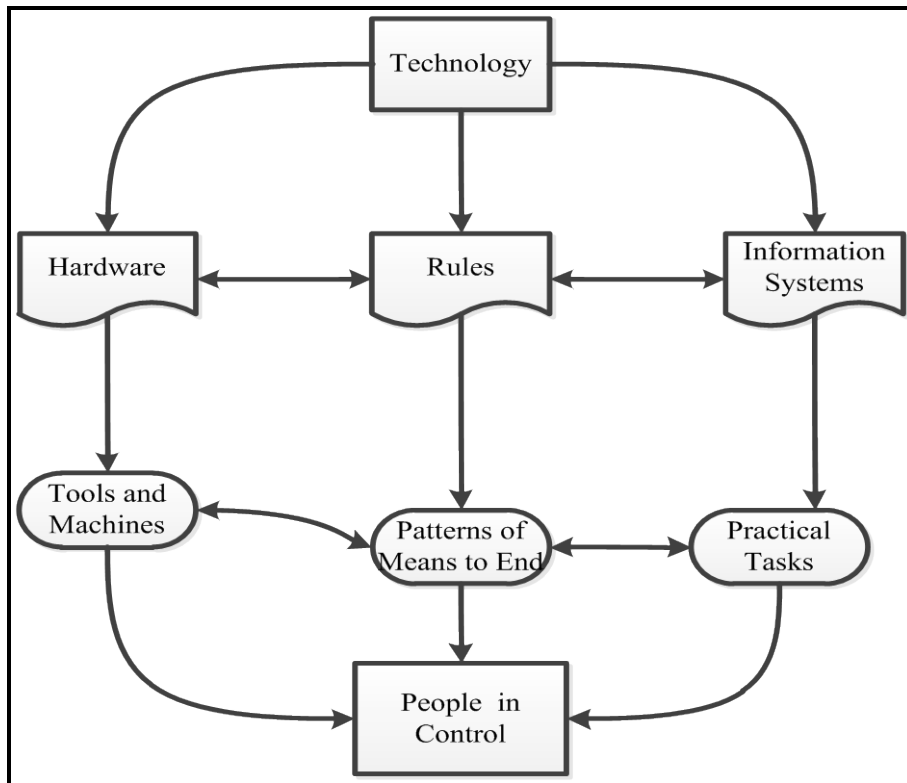
Figure 1: Typology of approaches to define technology

Figure 1 shows the relation between people and technology. The role of the human agency in the history of technology cannot be ignored (Mumford & Winner, 2010). People are active participants in innovation, and are the drivers of technological advancement. This means that ideas matter in shaping the history of technology. A later discussion on critical theory will review forms of domination and power associated with technological advancements in modern society, and in LIS. The

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point here is that, as in the past, technologies are constantly subjected to new ideas and challenges. These ideas and challenges may be better understood in the context of philosophical discussions of technology.

2.3.2 Philosophy of Technology

Some scholars have argued that the technology discourse is just an ideology. Fisher (2010), states that this view was developed by the so-called Frankfurt School (see section 2.5.1). Technology has also been treated as a myth, suggesting that any social problem is subject to a technological fix. The German philosopher Martin Heidegger's (1889-1976) views are relevant here because of his book, *The question concerning technology.* This work seeks to describe the essence of technology (Heidegger, 1977; Thomson, 2000; Belu & Feenberg, 2010). Heidegger was particularly concerned with understanding the human ontological condition (Feenberg, 2009a; Belu & Feenberg, 2010). He understands new technology as something different to older, pre-industrialised forms of technology. He observed that there is a way in which technology is a danger to man. The purpose of questioning technology is therefore to break the chains of technology and to be free, not in the absence of technology but through a better understanding of its essence and meaning (Heidegger, 1977).

Some of the main issues that have arisen over the past decades in the philosophy of technology deal with computers and information technology. Many studies are

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concerned, for example, with the "empirical aspects of the development of technical artefacts, systems, techniques, and their relation to society" (Brey, 2003:46). Following the reflections of Heidegger and other philosophers of technology in general, a number of LIS scholars have thought seriously about the implications of technology generally and ICTs in particular for libraries and library services. Their writings and ideas are relevant to the social context of information and technology in library services, and have important implications for the study of Web 2.0/3.0 e-service quality in academic libraries. They therefore deserve closer scrutiny.

2.4 Theoretical Approaches in LIS

LIS scholars have made tentative efforts to develop the discipline's theoretical and philosophical underpinnings. These efforts have noted the effects of technology on library services, some of which express anxiety about the demise of the profession (Buschman, 2003). Apart from the underutilisation by library managers of theoretical and philosophical ideas, there are cases of poor decisions that are based on mere opinion and speculation. Some commentators blame this on an 'intellectual crisis' among library management (Riggs, 2001; Warner, 2001; Gorman, 2004). In brief, sound intellectual or theoretical approaches are warranted, and could become helpful guides to improving user satisfaction with services involving ICTs.

For example, Ranganathan's (1931) five laws of Library Science may be deemed to represent the ideal service and organisational philosophy of most libraries today. We may re-visit the fifth law in relation to current technological developments, and

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propose a new stance. Ranganathan's (1931:326) fifth law states that "the library is a growing organism". This law implies frequent evaluations of library services aimed to facilitate this growth. While Ranganathan proposed that library organisations must accommodate growth in staff, physical collection, and patron use, technological advancements compel a search for new ways to create library services that improve user satisfaction with technology-driven services.

Adapting Ranganathan's five laws of Library Science, Simpson (2008), a librarian, proposes a new set of the 'five laws of the web' as follows:

- media are for use;

- every patron his information;

- every medium its user;

- save the time of the patron; and

- the library is a growing organism.

This review of Ranganathan's laws emphasizes the role of technology to enhance service and stimulate the growth of the library. The five laws of the web is one illustration of how theoretical approaches and models can be applied to technology-driven information services, and improve user satisfaction. For example:

- The web exists to help users by providing global access to information. This emphasizes the importance of freedom of access to information, and democracy in institutions such as university libraries.

- The web is about service. The web exists for society and should serve the interests of society. In order to benefit academic library services it must identify the benefits for library users, and devise means of delivering such benefits.

- Every web resource should have a potential user, be it for enjoyment, education, or research. Academic librarians can assist the library users in finding resources through the use of mailing lists, listservs, discussion groups, and social networking tools such as online chats, IM, Facebook, or Twitter, which all constitute essential features of technology-driven services. The need to save the users' time is a function of efficiency of service implying that the library's website needs to be well designed and easy to use. If this is achieved, it raises the quality of e-services.

- The web is a growing organism. This statement points to two issues. One, it demands a constant upgrading of technology skills. Two, it calls for flexibility in the management of the web collections, technologies, and use of cyberspace. The web is identified as a powerful stimulus for technological, educational, and social change. The user is central to the process and is the main focus of all related activities. The web supports information exchange and use, and is thus a dynamic source of information for all kinds of users.

The revised laws are applicable to this study, which focuses on the assessment of the

quality of Web 2.0/3.0 services in academic libraries. The larger point is that LIS researchers and library managers need to acknowledge the relevance and value of theoretical and philosophical ideas for of LIS practice, and the profession more generally. Existing LIS research and paradigms are deemed by some to be inadequate and inclined mainly towards positivistic approaches (Budd, 1995; Buschman, 2003). Buschman (2003) maintains that the crisis in LIS is bound to go on unless the literature on LIS assimilates relevant interdisciplinary theoretical approaches. It is therefore salutary at this point to examine briefly the work of a sample of LIS scholars with a view to formulating a suitable theoretical approach for understanding the power dynamics underpinning Web 2.0/3.0 e-service quality in academic libraries.

A number of LIS scholars have investigated the ties between LIS practice and philosophical or theoretical frameworks (Hjørland, 2005b). The focus here is on those scholars who gained prominence since the late 1970s. Table 1 provides a chronological listing with some of their significant theoretical contributions.

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LIS Scholars	Year	Contribution
Jesse Shera & Donald Cleveland	1977	Propose a theoretical foundation in LIS and a critique of Shannon Weaver's Information Theory.
Pranas Zunde & John Gehl	1979	Discuss as crucial the phenomena through which the nature of information is revealed and embodied.
Jack Meadows	1990	Presents ideas on applicability of the new range of theories to LIS
Jeffrey Gattenn	1991	Explains the nature of library science paradigms and how they shape professional practice.
Pertti Vakkari & Blaise Cronin	1992	Presents various epistemological approaches to LIS research.
Archie Dick	1993	Identifies generalised conceptions of the positivist, constructivist, and critical assumptions that underpin LIS research.
Brenda Dervin	1994	Identifies six different stereotyped sets of ontological and epistemological assumptions underlying discussions on the information-democracy relationship.
John Budd	1995	Proposes that a hermeneutical phenomenology should supplant positivism that may be applied as a foundation to LIS research.
Archie Dick	1995	Proposes the reshaping of LIS as a professional discipline through the development of a strong theoretical focus on epistemology.
Raphael Capurro	2000	Discusses a future for information ethics based on a digital ontology.
Gerald Benoît	2002	Proposes a logico-analytic philosophy portraying information from an explicitly positivist and hermeneutical standpoints, which generate useful technologies.
Luciano Floridi	2002	Analyses the relations between philosophy of information, LIS and social epistemology, and concludes that philosophy of information and LIS can fruitfully contribute to the growth of basic theoretical research.
Raphael Capurro & Birger Hjørland	2003	Discusses the importance of etymology in LIS research, especially its interrelation with 'use'.
Ronald Day	2010	Elaborates on the self-imposed limits of LIS and asserts that a critical approach to research in LIS is what is lacking in order for the discipline and profession to address current social, political and cultural issues.

Table 1: Chronological listing of significant theoretical contributions by some LIS scholars

From an information perspective, LIS research must be based on a philosophy that takes into account the information users as beneficiaries of library service delivery processes. All the scholars listed in Table 1, as well as others, allude to the benefits of philosophical analysis for LIS research and practice. Olson (1995), for example, has argued for the examination of ontological and epistemological aspects of LIS.

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Ontological and epistemological approaches describe perceptions, beliefs, assumptions, and the nature of reality and truth (knowledge of that reality) and can be adapted for application in both LIS research and practice. It is therefore important to understand these approaches in LIS research so that LIS researchers and library managers ensure that research biases are understood, described, and minimised. Epistemological and ontological approaches are discussed in the next section.

2.4.1 Epistemological Approaches in LIS

The discussion of epistemology in LIS scholarship focuses on the relations between the core elements of LIS namely, libraries, users, and information. Emphasis on these has shifted over time. Libraries and their users have become more complex and, in a definitional sense, information seems to have become ambiguous (Hansson, 2005).

An epistemological perspective is "a stance that opens the inquirer to several possibilities" (Budd, 1995:304). In order for a discipline to advance enquiry and to be reflexive it must have an epistemological position. Therefore, in LIS, the grounded study of the use of libraries or of the transmission of information is impossible without an understanding of what underlies the act of using a library or of transmitting information (users and technologies).

Day (1996) analyses the way that this discussion has developed in LIS and proposes

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a view that is considered to be more progressive. Two interdependent problems are raised. First, LIS has always tried without much success to identify itself as a science in a traditional, modern sense. The reason for this is twofold: the lack of ability to define a proper object of study within the discipline, and the subsequent lack of ability to formulate a method by which this object can best be studied. The existence of an object of study and the development of methodological consensus are the two distinctive features of a modern scientific discipline, and are imperative to claim modern scientific status.

Marijuán (2009) suggests that a mature information science should offer a new panoramic view of the sciences themselves and achieve social adaptability and sustainability. Today many epistemologists are interested in the social aspects of knowledge creation, production, and discovery. Figure 2 provides an overview of general epistemological approaches in LIS research, and their areas of impact.
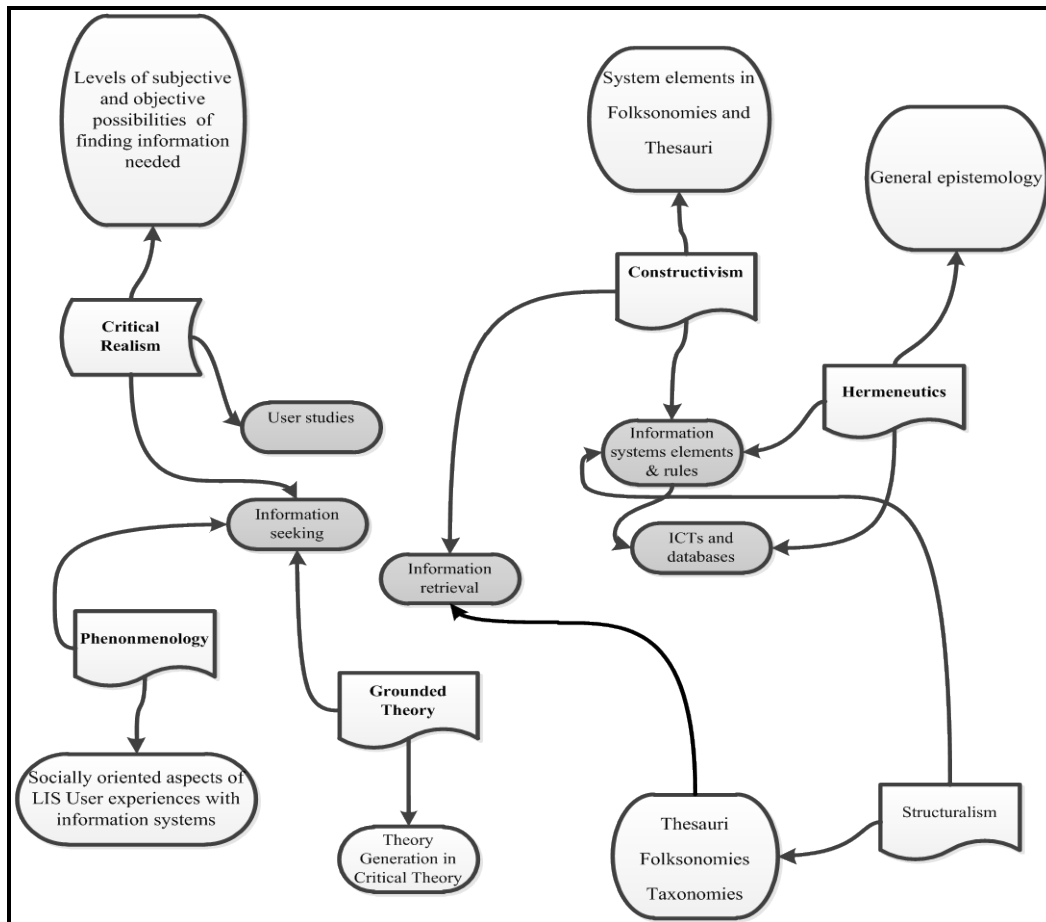
Figure 2: Application of general epistemological approaches in LIS research

Figure 2 above is based on the extant LIS literature on epistemology. The approaches listed are mostly those that may impact on library services and library technologies, and are useful for this study. LIS scholars have identified critical realism, constructivism, grounded theory, hermeneutics, phenomenology, pragmatism, structuralism, and critical theory as potentially useful epistemology-related approaches. For example, critical realism is applicable to both user studies and information seeking. According to the epistemological lifeboat website, epistemology is important to LIS for two reasons. One, because it can be adapted to research methods (Hjørland, 2005b) and two, because LIS is about communicating

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knowledge, and can essentially be seen as applied epistemology. Any kind of activity concerning selecting, organizing, seeking or communicating knowledge is basically an epistemological activity.Sites of application in LIS include information retrieval, information seeking, ICTs and databases, user studies, and information systems rules and elements. The focus here is on a discussion of social epistemology, which has the earliest and longest connection with LIS and is useful for the purposes of this study.

2.4.1.1 Social Epistemology in LIS

Recent arguments about social epistemology and LIS generally imply that social factors and social institutions are important when people acquire knowledge from other people (Fallis, 2006). As a developing area of interest, social epistemologists adopt several stances in their work. Two important philosophers, Alvin Goldman and Steve Fuller, are acknowledged for their ground-breaking approaches in this regard. Although their ideas take different directions, Fuller's view of social epistemology is closer to those of library theorists Margaret Egan and Jesse Shera, and focuses on the sociological aspects of knowledge. Goldman's perspective connects more narrowly with formal philosophy, focusing on claim and argumentation (Budd, 2002).

Goldman's work does however carry some weight for the meaning of social epistemology in LIS philosophy (1987). He is the author of the entry on social

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epistemology in the well-respected *Stanford Encyclopaedia of Philosophy*. In that article he acknowledges Shera's (1970:86) work and that of his associate Egan that "social epistemology is the study of knowledge in society. The focus of this discipline should be upon the production, flow, integration, and consumption of all forms of communicated thought throughout the entire social fabric."

Egan and Shera were the earliest proponents of social epistemology and its relevance for LIS research. Shera was particularly interested in the links between social epistemology and librarianship. Several LIS scholars have since written on social epistemology based on Shera's ideas, and the concept has also been abused for political purposes (Dick, 2002b).

It is important to note that since Egan and Shera first talked about social epistemology, knowledge production, organisation, management, and use has changed and will continue to do so with the spread of new ICTs. As electronic information becomes more accessible, human rights, equity, and intellectual freedom are new knowledge and epistemology-related elements with emphatic democratic implications for LIS thought and practice. Fallis (2006:508) maintains however that social epistemology provides "a unified theoretical framework that may allow us to improve the policies and practices of information services". Social epistemology is, for example, at work in knowledge-sharing practices in libraries.

As library service delivery processes change in an online-information environment,

social epistemology is implicated in areas such as reference service, but also in access to, and the creation of user-generated content. User-generated content includes information such as profiles, pictures, videos, ratings, reviews, through tagging and commenting on existing content. Users may add a profile to a website so that their friends can read about them. Users might write reviews of books on Amazon. Many sites have added the ability to tag, which refers to a way of identifying information on the web. Tags are essentially lay subject headings.

A library user might identify a website, photos, or even books with tags. When items in a collection, websites on the internet, books in a library catalogue, or pictures in an online album are tagged by users, the epistemology and ontology of ideas emerge (Pressley, 2006; see section 2.4.2). Through tagging, for example, social epistemology connects with ontology in LIS practice. What this means is that ordinary users are contributing to knowledge production and organization in an electronic information environment, making these processes more democratic and empowering to users. This can be understood and explained in a social epistemology approach. In this study, social epistemology also emphasizes the importance of critical theory for dealing with the power dynamics of knowledge creation and sharing (see section 2.5.3; Crozier, 1991; Langman, 2005; Feenberg, 2008). The Figure 3 below presents a typology of knowledge generation, and Web 2.0/3.0 use in LIS practice under the heading of social epistemology.
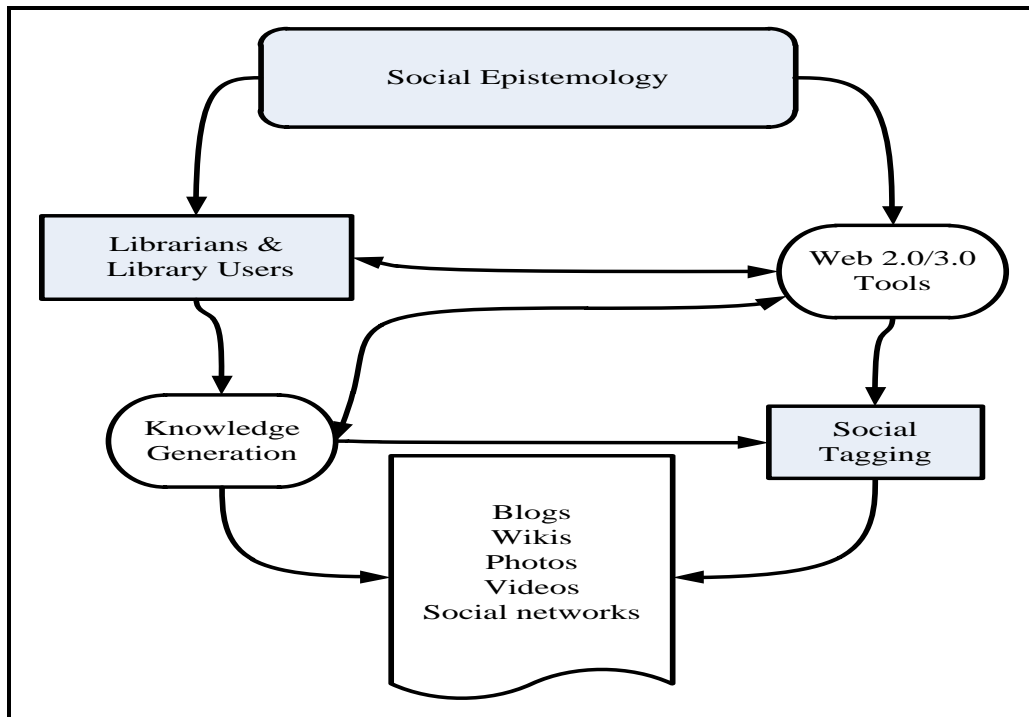
Figure 3: A typology of social epistemology in LIS

Figure 3 shows the application of social epistemology in LIS for knowledge generation by librarians and library users using social tagging, and sharing it through Web 2.0/3.0 technologies such as blogs, and social networks.

2.4.2 Ontological Approaches in LIS

The word 'ontology' means a systematic explanation of existence. Ontology seeks to provide a definitive and exhaustive classification of entities in all spheres of 'being' (Smith, 2004). Quine (1957) defines ontology as a network of claims, derived from the natural sciences, about what exists coupled with the attempt to establish what types of entities are most basic. Ontology refers to the basic terms and relations comprising the vocabulary of a topic area as well as the rules for combining terms

and relations to define extensions to the vocabulary (Neches, *et al*., 1991). A typical ontology has a categorisation defining the subject matter using notions of concepts, instances, relations, functions and axioms (Gilchrist, 2003). Other scholars attempt to provide definitions of ontology mostly describing a 'knowledge-sharing community' (Gruber, 1995; Guarino & Giaretta, 1995; Guarino, 1997; Heijst, *et al*., 1997).

Ontological approaches in LIS are used as forms of knowledge representation about the world and can be explained as describing individuals, classes, attributes, relations, and events (Little & Rogova, 2009). Ontology, like epistemology, begins with experience. We see the world and then attempt to understand it. Information that has been organised into ontology and accepted by a body of practitioners can be made available to a user knowledge-sharing community through a library. The pioneering LIS scholar, Vickery (1997), drew attention to ontological approaches. Ontology in LIS may be defined as a formal explicit specification of a 'shared conceptualisation' (Ding, 2001). Shared conceptualisation refers to consensual knowledge that is not private to some individual and it is accepted by a given group or community. In other words it refers to forms of knowledge sharing. This connects the idea of ontology to social epistemology.

In LIS, examples of ontology may broadly include the areas of knowledge organisation, covering information systems, and more specifically, the library

catalogue, thesaurus, glossary, and collection of taxonomies (Capurro, 2000b; Smith & Welty, 2001; Gokhale, 2009). The application of ontology in the area of knowledge sharing is increasing. Knowledge sharing involves digital libraries, repositories, and the semantic web (Ding & Foo, 2002). Ontology-based semantic annotation of articles may further enhance the potential of digital libraries for knowledge sharing (Gruber, 1995). In this way, as we shall see, ontology in LIS also includes Web 2.0/3.0 technologies.

An important aspect of ontologies in knowledge sharing is the utilisation of the re-use model (Gomez-Perez & Benjamins, 1999). Knowledge developed in one model can be re-used in another area. This application of the re-use model extends directly to digital libraries (Neches, *et al*., 1991). In LIS, the 'knowledge modelling' approach views knowledge sharing as model re-use in which a model developed for one task can be used for other tasks in the same domain, or a problem solving model may be used for similar tasks in other domains (Beers & Bots, 2009). In knowledge sharing the concept of a 'community of practice' is significant and relevant to this study.

A community of practice is a group that shares information, insight, experiences, and tools about an area of common interest (Lea, 2005). The group frequently engages in open discussions to help each other solve problems (Wenger, *et al*., 2002). Some of these groups share knowledge across disciplines and rely heavily on tools such as ontology.

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A case study of how community of practice principles have been applied at the University of Cape Town provides a good example of this approach (Carr, *et al.*, 2008). In that study a multifaceted combination of activities and staff support systems yielded growth in the domain, community, and practices largely through the effective facilitation of experiences. Ontology is therefore important to this study on the grounds that it involves knowledge sharing among academic librarians and library users.

The notion of ontology has become prominent in fields such as information integration, information retrieval, knowledge management, web standards, and online databases (Smith, 2004). The reason for ontologies becoming so popular is the lack of standards for communication syntactically and semantically from human and computer perspectives (Wand & Weber, 1993; Kim, 2002). In a way, they provide users with an open platform to share knowledge and information without prior technical training. A typology of ontological nuances in LIS derives from extant literature on ontology, and shows its application in this study. Figure 4 is a typology of ontological applications in LIS. It shows the relationship between knowledge sharing and shared conceptualisation in LIS practice in a Web 2.0/3.0 environment.
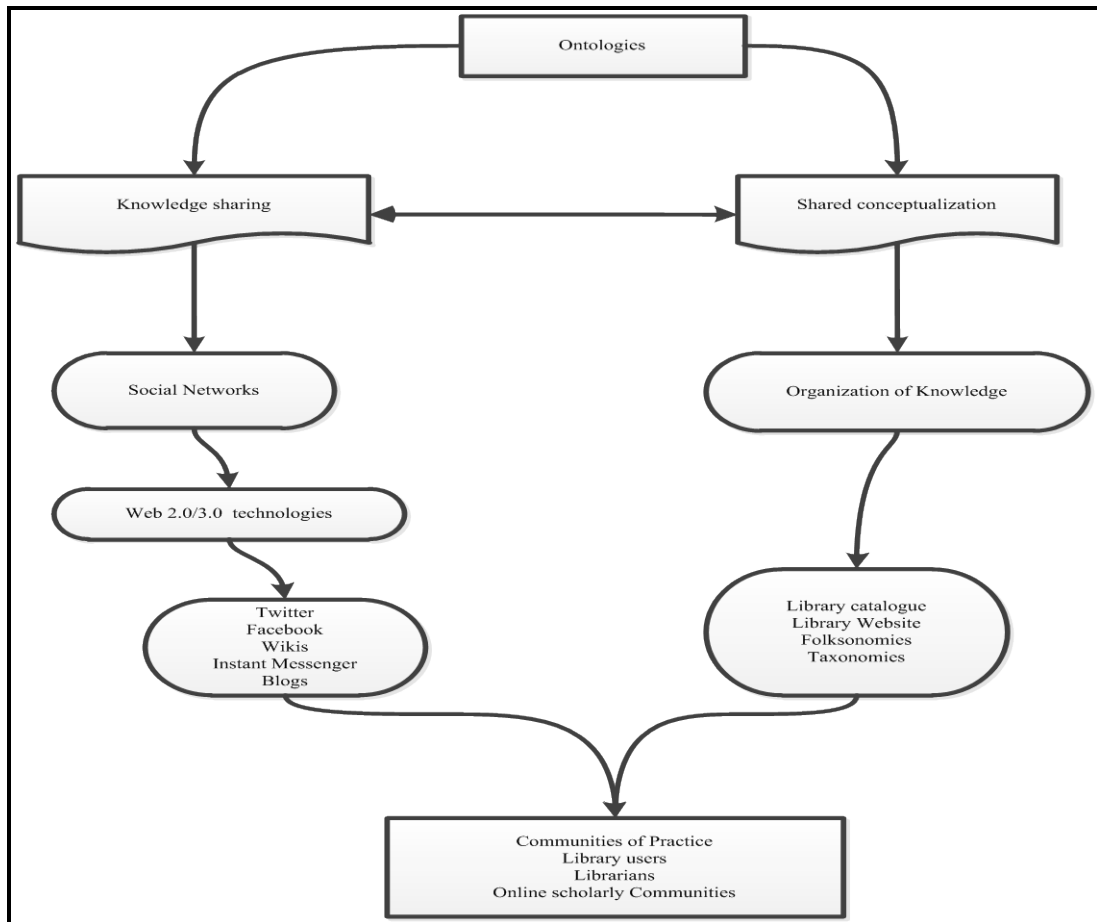
Figure 4: Typology of ontological applications in LIS

The theoretical relevance of social epistemology and ontology for this study is therefore that social epistemology provides a context for understanding the democratization of knowledge generation with the user's increasing involvement, and that ontologies provide a context for understanding knowledge sharing among librarians and library users in a Web 2.0/3.0 environment. What still remains necessary is to provide a context in which the power dynamics of knowledge generation and knowledge sharing in such environments can be understood. Critical theory in LIS provides this context.

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2.5 Critical Theory

Critical theory is a paradigm characterised by a combination of philosophy and social science, which has systematically integrated various ideas, as well as philosophical approaches. Critical theory can be viewed as a framework that allows for a blend of different theoretical approaches. The role of critical theory in this study can be better understood through its accommodation of the ontological and epistemological approaches already discussed.

Critical theory may be understood in two ways:

- as a school of thought; and

- as a critique that aims at empowerment.

2.5.1 The Frankfurt School

Of the Frankfurt School, Jürgen Habermas is the most influential for elaborating the concepts of information and technology in society. He builds on Marxist ideas in formulating critiques of modern society (Jessop, 2003). According to Habermas, critical theory should address the substantive issues and dilemmas of modern societies. This theory has been applied in many social systems including management, politics, and media. The reflexive attitude is dependent upon some philosophical grounding (Budd, 1995). The critic must give a theoretically informed analysis of social phenomena while assuming a neutral position (Leckie, *et al.*, 2010). In LIS, critical theoretical perspectives can help us to understand how

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changes in society such as globalisation affect technology-driven services in libraries. The critical theory approach adopted in this study focuses sharply on information and technology phenomena in the context of power and empowerment.

2.5.2 Critical Theory and Empowerment

Empowerment is fundamentally about gaining power. It carries the idea that people should be enabled to take control themselves (Pruijt & Yerkes, 2013).Central to the work of improving human lives are two components: personal control and mechanisms for correcting power imbalances in society. In many cases, scholars have assumed that empowerment is the same as delegating or sharing power with subordinates, and that the construct requires no further conceptual analysis beyond the power concept (Conger & Kanungo, 1988; Drydyk, 2008).

The definition of power has itself been the subject of much scholarship. It is a root construct of empowerment (Haugaard, 2012). Power is viewed as embedded in social interactions (Cattaneo & Chapman, 2010; Conger & Kanungo, 1988). These interactions are not just limited to struggles for dominance but include the wide range of ways in which people assert influence (Cattaneo & Chapman, 2010; Cruikshank, 1999). Increase in power is an increase in one's influence in social relations. In LIS, we can argue that the power of the librarian is strongly connected to the power of the library. Librarians gain power by exercising bibliographic control (Wilson, 1968; Thompson, 1974). Bibliographic control entails both

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descriptive and exploitative power that is necessary to procure the best information resources for attainment of one's goals (Wilson, 1968). However, they do so in accordance with a set of professional values, attributes that make librarians elite professionals (Thompson, 1974).

A search for 'empowerment' in *Library & Information Science Source,* (2014) a database developed to meet the needs of librarians, information professionals, and students, yielded 890 results. Empowerment has been applied in fields such as psychology, management, and politics. It is also a popular concept in human resource (HR) practice and includes employee empowerment whose operationalization is confined within a specific work place or organisation. A search for empowerment in the *Library Abstracts* database (2014) yielded 139 articles that focus on employee empowerment. The search results using these two databases indicate that the concept of empowerment features prominently in LIS studies.

Cattaneo and Chapman (2010:647) define empowerment as "an iterative process in which a person who lacks power sets a personally meaningful goal oriented toward increasing power, takes action toward that goal, and observes and reflects on the impact of this action, drawing on his or her evolving self-efficacy, knowledge, and competence related to the goal". Based on their model of the empowerment process, Cattaneo and Chapman (2010) outline three key elements that affect individuals during an empowerment process. These elements include self-efficacy, knowledge, and competence (Cattaneo & Chapman, 2010). Self-efficacy is the individual power

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obtained through increase in personal power. In such a case, a reflection on the obstacles to success, such as discrimination or lack of resources, reveals the power dynamics (Haugaard, 2012). An individual's level of perceived success or failure and their explanation of it are the strongest influences on one's efficacy of beliefs. In academic libraries, it may refer to opportunities to learn IL skills or free access to resources that are presented to an individual or a group of library users. Individuals have to make a choice on whether to accept the opportunity or not. Such situations present opportunities for individuals to make decisions that lead to their own empowerment. What is of significance in this case is that the library and the librarian made the opportunity or choice possible.

Empowerment refers to one's understanding of the relevant social context, including the power dynamics at play, the possible routes to goal attainment, the resources needed, and ways to obtain them (Catteneo & Chapman, 2010). Competence refers to skills. It is about knowing what to do. According to Cattaneo and Chapman (2010), it is important to articulate competence separately from knowledge because it is conceptually distinct. Knowing what to do is not the same thing as knowing how to do it, each of these components presents its own challenges. The librarian, who is in possession of IL skills is empowered and has power over academic library users. Knowledge of information resources and retrieval skills gives the librarian power and dominance over the users.

But as mentioned already, library service delivery processes are changing

dramatically and 'power over' or dominance over users is slowly declining. New ICTs such as Web 2.0/3.0 continue to empower user groups such as academic library users. Academic library users are able to access information resources through networks and the use of passwords. Academic library users with IL skills may feel empowered and be in control of their personal research activities, as well as conducting searches and retrieving relevant information without the assistance of librarians. However, the power dynamics between users and librarians are still significant. The librarians still have power over the library users through their professional knowledge, skills, and roles. This is an indication of librarian dominance or power in imparting IL and other library skills to the library users. The library/librarian power nexus has been in existence since the pre-technology era (Thompson, 1974). On the other hand, emerging Web 2.0/3.0 technologies are empowering academic library users to create, share and access information resources with each other even across the library networks. Through these new ICTs, new social interactions continue to develop changing the power dynamics. Previously, the librarian almost had exclusive power over access to information resources (Thompson, 1974). Forms of domination, power, or empowerment are key concepts in critical theory and have been applied in LIS in a number of ways.

2.5.3 Critical Theory in LIS

There are several applications and potential applications of critical theory in LIS including:

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- To study power/empowerment/disempowerment relations (power dynamics) between librarians and library users.

- To strengthen the LIS field conceptually, methodologically and theoretically, thus reducing the dangers of isolation, and to keep in tune with trends in other disciplines (Buschman, 2009).

- To expand the boundaries of what is known and to open up new possibilities for research (Frohmann, 2004).

- To provide an array of perspectives or approaches that enable LIS researchers to examine issues affecting academic libraries in new ways (Buschman, 2009).

Day (2010) proposes two levels of applying critical theory in LIS:

- the practice; and
- the models or explanations of theory.

Buschman (2009) argues that LIS needs a critical approach to information technology for the following reasons:

- an examination of relationships between work and power;
- lack of an existing model for the provision of e-resources;
- changes in services and collections including overall automation of library processes; and
- the digitisation of text.

Drawing on earlier discussions and ideas of the scholars already discussed, Figure 5

is a graphic representation of power and empowerment relations (power dynamics) between librarians and library users in library e-services.
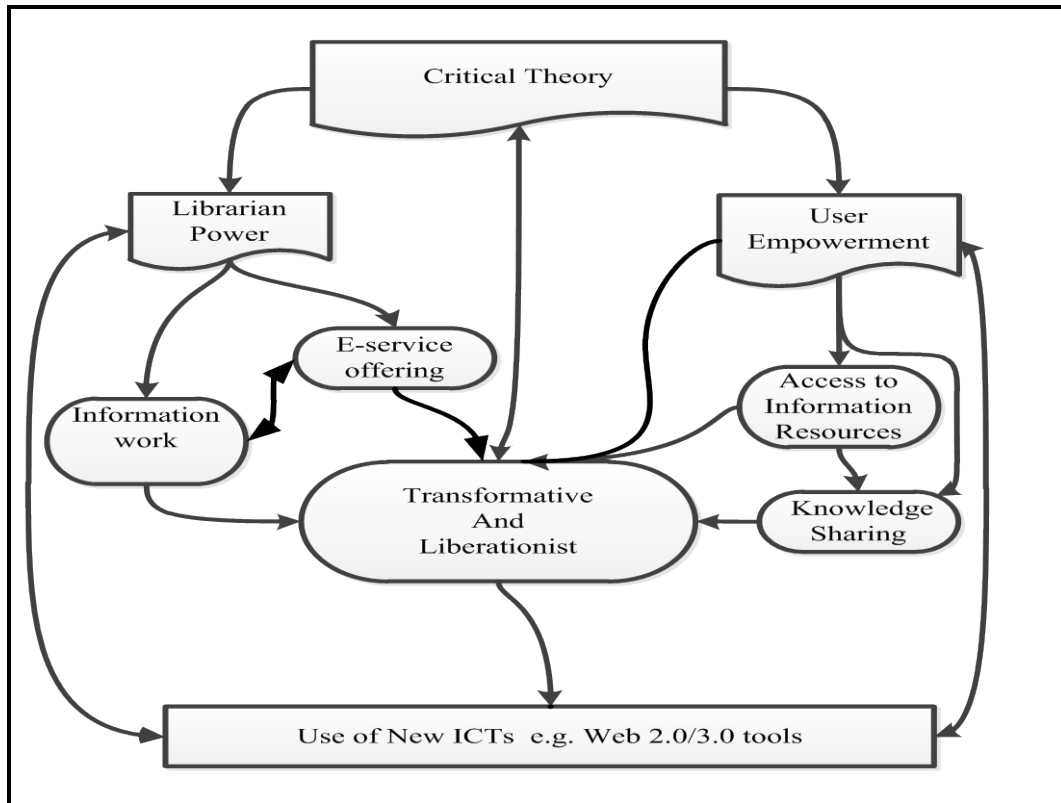
Figure 5: Typology of critical theory application to LIS

Figure 5 shows the application of critical theory in a Web 2.0/3.0 environment in academic libraries. Through its transformative and liberationist stances, critical theory is useful in providing a deeper understanding of power and empowerment relations between academic librarians and library users in a Web 2.0/3.0 environment. For example, academic librarian power is evident through information work that involves core activities such as classification, cataloguing, reference work, information retrieval and user instruction. Critical theory's transformative stance

implies that academic librarians who provide user instruction will be empowering them beyond access to traditional information resources, and facilitate their ability to generate, and share information/knowledge using Web 2.0/3.0 tools. At the same time, user empowerment may be viewed as a disempowering threat to librarians. These power dynamics should therefore still be examined empirically with a view to their management in academic libraries.

Critical theory accommodates the social epistemology and ontology discussed earlier by focusing on the users' role in knowledge generation and knowledge sharing, and on power dynamics among librarians and users in a Web 2.0/3.0 environment.

2.6 Web 2.0 and Web 3.0 in Academic Library Services

Academic librarians need to focus their attention on the use of Web 2.0/3.0 technologies and to carry out more studies to determine the way in which they impact on users. Policy advocates in academic libraries can no longer assume that their agendas for a just and equitable knowledge society will succeed because their institutions and collections played such a visible role in the print world (Shuler, 2007). A different set of global public policies and private expectations now shape the scholarly exchange of digital information, along with its long-term sustainability (Shuler, 2007; Ross & Sennyey, 2008; Crawford, 2011). An academic library collection may be only one information choice among many possible choices available for a scholar or student. In addition, the institutional ties to a university

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may no longer command much ability to sway the choice (Shuler, 2007). Studies on preference and use of online resources indicate that the majority of the students, undergraduates, and postgraduates, in both developed and developing countries have a higher preference for online resources (Tenopir, *et al*., 2003; Ross & Sennyey, 2008; Oyieke & Dick, 2010).

At the same time, academic library websites are undergoing continuous evolution and as Liu (2008) points out, today they are customisable, allowing for user engagement, interaction, and support in online communities. The rapid expansion and adoption of digital information resources has created a need for libraries all over the world to offer high-quality online experiences on their websites. In the US, a number of academic librarians have shifted their perceptions of users from mere information consumers to producers and architects of information (Liu, 2008; Chua & Goh, 2010). This shift has been facilitated by the use of new ICTs such as the Web 2.0/3.0 (Maness, 2006; Abram, 2008; Holmberg, *et al*., 2009).

Web 2.0is a term often applied to a perceived on-going transition of the World Wide Web from a collection of websites to a full-fledged computing platform serving web applications to end users (O'Reilly, 2007). Web 2.0 serves as a platform that spans all connected devices. The technology infrastructure of Web 2.0is complex, constantly in flux, and actually in a renaissance mode. It includes server software, content syndication, messaging protocols, standards-based browsers, and various client application applications (Chua & Goh, 2010; Fuchs, 2011; O'Reilly, 2007).

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Ultimately Web 2.0services were expected to replace desktop computing applications for many purposes (Abram, 2008).

Web 2.0has initiated a new age of web interaction. Countless everyday activities such as seeking information, shopping, filling in forms, and making appointments can be done effectively and often more cost effectively on the web. Academic libraries can improve communications with users by using Web 2.0technologies to foster and create discussion groups, and online activities, following the example of mainstream social networking sites (Abram, 2008; Fuchs, 2011; Lancaster, 2008). Abram (2008) highlights some of the features included on Web 2.0 platforms. The interactivity feature forms a core aspect of Web 2.0. For him, interactivity has human aspects such as conversations, interpersonal networking, personalisation, and individualism. It focuses on the content of people workplaces, markets, community, and learning (Abram, 2008). For librarians, Web 2.0 provides the opportunity to reach patrons where they live on the web and to provide service at the point of need. These tools may provide us with the means to reach a different population than we reach face-to-face and to forge new connections between patrons and the library. Web 2.0 provides the opportunity to provide information in multiple formats including text, audio, and video to best match the different learning styles and preferences of the patrons (Shippert, 2009). Web 2.0 is about the distribution and creation of web content characterised by:

- open communication;
- decentralisation of authority;

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- freedom to share and reuse content; and

- using the market as a conversation (Abram, 2008).

Everyone can participate and influence the development of the web. Academic librarians and information services professionals can also interact more efficiently, creating additional information and content, and generating knowledge (Miranda, *et al*., 2010). Wood (2009) discusses current practices in academic library websites in South Africa with regard to certain features related to their functionality, content and services, design patterns, and innovative features. Most concepts behind Library 2.0 are constructive, building on today's best and improving for the future. Crawford (2011) suggests that evaluation concepts and tools in Web 2.0should be discussed, explored, and implemented as appropriate for various libraries depending on community needs and library resources. He argues that the only exceptions may be over relative priorities and expectations and possibly what constitutes success, both in new and existing services.

The social web, or Web 2.0, consists of immersive, personalised web services that allow users to create, share, disseminate, and consume information in ways that help them realise their specific goals and aspirations (Fuchs, 2011). Librarians and information professionals need to consider these goals and motivations, while also looking to develop solutions that help patrons derive meaning from the content they provide (Tennis & Calzada-Prado, 2007). Although librarians have been doing this in traditional libraries for a long time, the availability of online delivery and the

increase in user demand makes it imperative to make their institution's websites and web applications not only appealing but also enjoyable and easy to use (Walker, 2010).

The discussions and dreams about a 'Web 3.0' are now a reality. Web 3.0 will probably be even more distributed than Web 2.0 and some of the Web 2.0 applications may disappear or merge with a new integrated platform. Web services or the emerging semantic web may replace such things as social networking sites and repositories. Either way, it rises to a new plateau of user experience and user control (Abram, 2008). Web 3.0 is also defined as a totally integrated world, a cradle-to-grave experience of always being plugged into the Net (Ho, 2010).

A next-generation service known as the 'Mingle Room Service' is described as a real-time, voice, video and multimedia communication platform and allows anyone, anywhere to engage with others on the web in a somewhat realistic and immersive way (Ho, 2010). Web 2.0/3.0 as well as other library systems, are enablers of such disaggregated networks. Library users are able to dismantle the public sphere and communicate issues using these web-enabled social networks. Issues of both scholarship and social nature are passed across Web 2.0/3.0 users. This creates a situation where the user needs the experience of the web and content but also to learn and succeed. To succeed as a user would imply a form of empowerment.

Within this context one can argue that empowerment of individuals may occur. Web

2.0/3.0 users can empower themselves through lifelong learning experiences as well as capturing the otherwise elusive tacit knowledge contributed through blogs and on Twitter. The challenge here is how academic librarians may ensure that the Web 2.0/3.0 users experience the true functionalities of this technology. The most interesting part is that it started with Web 2.0 but will continue through Web 3.0 and will have interesting ramifications to user services. The Web 2.0/3.0 technologies then become one arena where power struggles between librarians and library users are contested. The typology that follows in Figure 6 shows Web 2.0/3.0 categories and information use in academic libraries (Chua &Goh, 2010; Ho, 2010; Lancaster, 2008).
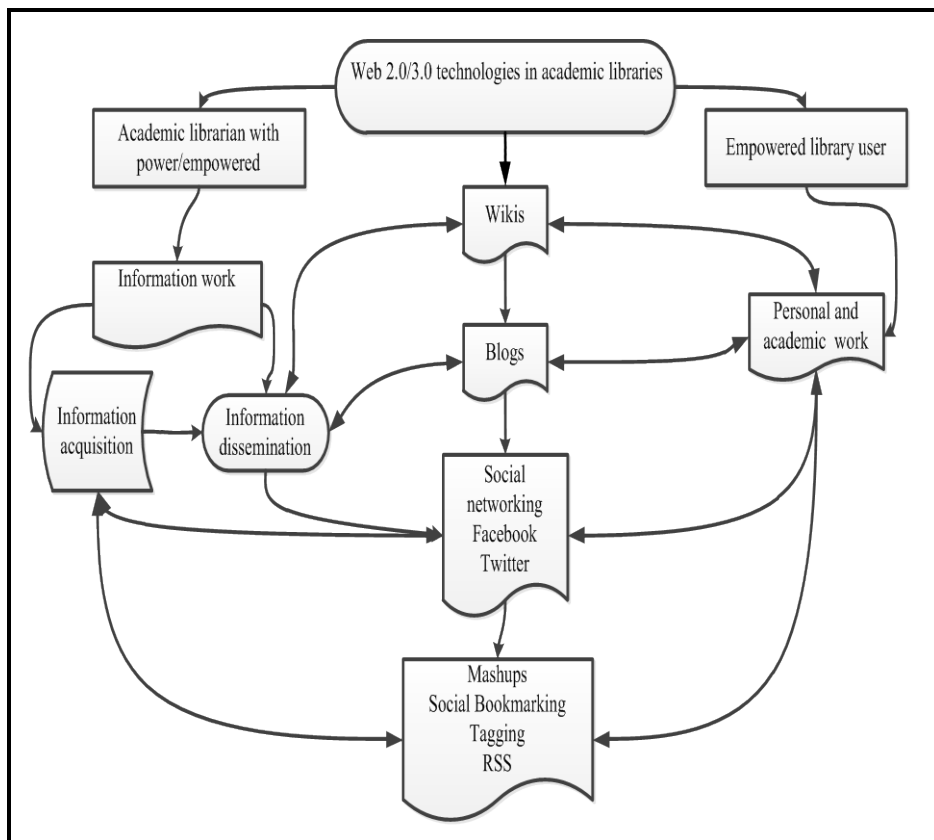
Figure 6: A typology of Web 2.0/3.0 categories and information use in academic libraries

The relationships in Figure 6 illustrate how Web 2.0/3.0 tools such as social bookmarking or RSS feeds can be used by empowered librarians in their information work for acquisition of metadata about information resources, as well as by empowered library users to access or share information.

Not enough research has yet been done to examine the extent to which Web 2.0/3.0 has been implemented in academic libraries globally (Chua & Goh, 2010). Some of the untapped concerns here would be how well these technologies serve the users (Lanzenberger, *et al.*, 2008), how well the users optimise the availability of such networks, and whether the user expectations are increasing faster than the libraries/librarians ability to change. With the increase in the number of websites over the last decades, research has focused on evaluating their quality. This study seeks to evaluate the existing e-service quality in selected academic libraries in Kenya and South Africa. It will provide a strategy that can be used to probe the power dynamics that underpin user satisfaction in the new library e-services offered through Web 2.0/3.0 platforms. User satisfaction is closely connected with the new dynamics of power and empowerment in the Web 2.0/3.0 environment (see section 3.5.1.1).

2.7 Summary

This chapter provided theoretical contexts on information and technology and how

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they are applied in this study. Ontological and epistemological applications in LIS were discussed as a context for knowledge sharing and dissemination using Web 2.0/3.0 technologies. The critical theory paradigm was introduced to show its relevance for dealing with the power dynamics at play between academic librarians and library users in a Web 2.0/3.0 environment. The next chapter presents a discussion on service quality and introduces a critical theory-based framework that can be used to probe the power dynamics underpinning user satisfaction with the Web 2.0/3.0 e-service quality in KLISC and GAELIC academic libraries.

CHAPTER 3

SERVICE QUALITY DISCOURSE

Quality in a service or product is not what you put into it. It is what the client or customer gets out of it. –Peter Drucker

3.0 Introduction

Service quality is an important concept for this study as it contributes to the theoretical framework for examining power and empowerment relationships between academic librarians and library users. Service quality however warrants a full chapter that reviews extant literature on the service concept, service characteristics, and the concept of quality. It includes the work of quality gurus W. Edwards Deming and Joseph Juran, and their philosophies on service quality. The service quality literature revolves primarily around two schools of thought namely, the Nordic (European), and the North American. The service quality models will be reviewed through a comparison of these two schools of thought, and how they relate to Web 2.0/3.0 e-service quality in KLISC and GAELIC academic libraries.

The use of Web 2.0/3.0 tools in academic libraries has created a need to re-examine their e-service offerings. "Academic libraries find themselves in a situation where they have to cope not only with the extraordinary and complex changes including

political, technological, financial, social demographic, cultural, and with the accelerated pace of change" (Hernon & Altman, 2010:22). Consequently, service providers including academic libraries are compelled to deliver services that meet or exceed the expectations of their users. In the case of academic libraries, it has become equally important to design e-services that meet the needs of the 21st century customers who have advanced levels of technological awareness.

The service quality discourse in this chapter reviews:

- extant literature on the service concept and service characteristics;

- quality concept and the founding quality gurus;

- service quality concept in relation to academic libraries;

- service quality models in the Nordic (European) and North American schools; and

- E-SERVQUAL, Web 2.0/3.0 technologies, and a critical evaluation component that addresses the power dynamics underpinning user satisfaction.

3.1 The Service Concept

Over the past three decades, the economies of developed countries have shifted from being production oriented to being services dominated. These economies are experiencing a 'service economy' in which more than half of their gross domestic product (GDP) is earned from the service sector. The service sector has accounted for over 60 per cent of developed nations' economies. In 2013 in the US, 79.4 per

cent; Japan, 73.2 per cent; United Kingdom (UK), 78.9 per cent; and in Canada, 69.9 per cent of the GDP was attributed to the service sector (CIA, 2013). The two developing countries in this study had the following GDP earnings from their service sector in 2013: Kenya 53.3 per cent, and South Africa 68.4 per cent (CIA, 2013). A service economy can been described as one involving a heterogeneous collection of economic activities (Andersen, 2000). The service sector has become even more prominent considering that a majority of the information technology products (over 80%) are sold in the service sector (Gustafsson & Johnson, 2003:2). At an organisational level, service is fast becoming the competitive battleground (Gustafson& Johnson, 2003).

A service concept has many meanings, ranging from personal service to service as a product (Grönroos, 2007). In a more simplistic way, a service concept entails the production and delivery of service in a systemic approach (Fitzsimmons & Fitzsimmons, 2000). The service concept plays a key role in service design and planning. It can be a key driver for service design decisions at all levels of planning.

However, while 'service' as a term is used frequently in the service design and new service development literature, surprisingly not much has been written about the service concept itself and its important role in service design and development. Generally, the service concept defines the 'how' and 'what' of service design and helps mediate between customer needs and an organisation's strategic intent (Goldstein, *et al*., 2002).

The service concept has been defined as:

- The way in which the organisation would like to have its services perceived by its customers, employees, shareholders, and lenders (Heskett, 1986).

- The elements of the service package, or the 'customer benefit package'. This refers to things that provide benefit and value to the customer(Collier, 1994). This approach of defining the nature of a service in terms of its constituent parts has also appeared in the marketing literature.

- The prototype for service, which is further defined as a detailed description of what is to be done for the customer (what needs and wishes are to be satisfied) and how this is to be achieved (Edvardsson & Olsson, 1996). Edvardsson and Olsson (1996) assert that the development of the service concept is a critical stage in service design. It involves understanding the needs of customers in the target market, and aligning it with the organisation's service strategy and policies.

- A detailed description of the customer needs to be satisfied, how they are to be satisfied, what is to be done for the customer, and how this is to be achieved (Edvardsson, *et al*., 2000).

The service concept has been broken down into smaller units as follows:

- service operation referring to the way in which the service is delivered;
- service experience, which is the customer's direct experience of the service;

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- service outcome are the benefits and results of the service for the customer; and

- value of the service, which refers to the benefits that the customer perceives as inherent in the service weighed against the cost of the service (Clark, *et al*., 2000; Johnston & Clark, 2001).

Deconstructing a service into its dimensions allows designers to identify the various elements of a service concept, check them against customers' needs, and then design and deliver those elements.

3.2 Service Characteristics

The most frequently cited service characteristics are intangibility, inseparability, heterogeneity, and perishability (Zeithaml, *et al*., 1985). These concepts may only be meaningful when they are defined in the context of service quality.

3.2.1 Service Intangibility

Intangibility denotes that services are activities and not physical objects, as is the case with goods. Often services cannot be seen, felt, tasted, or touched before they are purchased (Ghobadian, *et al.*, 1994). There are claims that intangibility is the critical characteristic of services from which all other differences emerge. The service delivery process in academic libraries refers to the activities which must

function if a service is to be produced, and includes certain inherent characteristics that distinguish them from physical goods (Grönroos, 2007).

A distinction has been made between physical intangibility and mental intangibility (Vargo & Lusch, 2004). Mental intangibility provides another angle from which intangibility may be discussed. In the current technological context, a customer may gain much more from such a service encounter (Vargo & Lusch, 2004). Mental intangibility has a long-term effect on the customer. This means that the ideas or knowledge gained during the service delivery process may last a lifetime.

Services are normally perceived in a subjective manner. When services are described by a customer, expressions such as experience, trust, feeling, and security are used. These are highly abstract ways of formulating what a service is. For academic libraries, service intangibility may occur when a reference librarian answers a reference question for a library user while referring to library collections such as databases or through virtual settings such as an online chat, email, or social media networks. Such a service may not be tied to a physical product that the library user will possess (Fisher, *et al*., 2006).The essence of a service is therefore the intangibility of the delivery process (Grönroos, 2007; Kurtz, *et al.*, 2009).

3.2.2 Service Inseparability

Services are consumed at the same time as they are produced, with the consumer playing an integral part as the whole process unfolds. In many services, the consumer is required to contribute information before the service transaction can take place (Philip & Hazlett, 1997). The challenge with this characteristic lies with the ability of the service provider to provide the same quality of service all the time to all the service consumers. In addition, service productivity and quality depend not only on the performance of the service providers' personnel but also on the performance of the consumer. This makes inseparability more of a problem for the service organisation, rather than an opportunity, as it presents significant managerial implications (Lovelock & Gummesson, 2004).

Librarians who work at the virtual reference desk may experience inseparability. The experience enables them to have interactive real-time sessions with the library customers as well as answer their reference queries. Under such circumstances librarians can be said to use technology to provide service offerings (Fisher, *et al*., 2006). It is a situation in which services are inseparable from the sources that provide them. A conclusion can be made that the simultaneous nature of production and consumption is a unique characteristic of service inseparability services.

3.2.3 Service Heterogeneity

Heterogeneity means that a service to one customer is not exactly the same as service to the next customer (Schneider & White, 2004). The heterogeneous nature of services creates a problem in how to maintain an evenly perceived quality of services produced and rendered to the customers. What is often referred to as the heterogeneous nature of services is often seen as more harmonious with the individualised and dynamic demand of the consumer (Vargo & Lusch, 2004).The presence of technology further complicates the matter as different customers may have varying levels of technological expertise and in using a technology-based service the difficulty may be caused by the technology.

Some services may be characterised in terms of standardisation through information technology. To customise such services will require non-standardisation which may have a negative influence on value creation (Edvardsson, 1997; Lewis & Littler, 1997). 'Service' scholars have been seen as easily accepting the idea that services have a disadvantage in relation to goods because they cannot be standardised as easily as goods (Lewis & Littler, 1997; Fisher, *et al*., 2006). As such, it is generally agreeable that service providers must work particularly hard to find ways to increase the standardisation of services. Academic libraries could, for example, increase service standardisation by maximizing quality and consistency through staff training, and by developing service strategies and policies that aim at improving user satisfaction (Fisher, *et al*., 2006).

3.2.4 Service Perishability

Service perishability means that services can neither be stored, nor ownership transferred. Perishability is related not only to services but also to managerial problems relevant to manufacturing companies and goods (Lewis & Littler, 1997). The issue of perishability should be looked at from the company's view point and not from the perspective of the customer (Fisher, *et al*., 2006). Service perishability in academic libraries may refer to what is called 'lost capacity'. Lost capacity refers to a situation where capacity is wasted. For example, in a library literacy training session, the numbers of customers who turn up for training on a particular day are fewer than expected, but the training session will still take place as scheduled.

The implication that services cannot be stored is challengeable. New technology seems to have turned the tables on this. Services are now stored in systems, buildings, machines, knowledge, and people. The electronic databases store e-resources, and self-training tutorials that library users can use whenever they need them. Online library resources and user training programs are sources of library user empowerment in academic libraries.

It has been argued also that when a service delivery process takes place the favourable and unfavourable customer experiences (outcomes) will be stored in long-term memory, and that therefore the service is not perishable. This raises concerns for academic librarians in that unfavourable library user experiences will

have negative impact on user perceptions of e-service quality. In such circumstances, academic librarians must be made aware of unfavourable library user experiences (outcomes), and develop service delivery processes that lead to user satisfaction.

Services also have other intrinsic attributes:

- production and consumption are simultaneous processes (although this may be challenged due to that fact that processes are predefined);

- they are processes or activities;

- the core value produced is in the customer-service provider interaction;

- customers participate in the production;

- they cannot be kept as stock; and

- there is no transfer of ownership (Gummesson, 1995; Grönroos, 2007).

Bryson, Daniels and Warf (2004) argue that to take a simplistic definition of services could be dangerous and that one must understand the vast differences that distinguish the numerous and diverse kinds of activities that pass for services. The conclusion is that the well-known characteristics of services should not be generalised to all types of services. The situations and conditions in which the characteristics apply should be understood.

3.3 The Quality Concept

There is much debate around the idea of quality. Without some understanding of its philosophical underpinnings it is difficult to build the management structures necessary to improve quality in academic library services. Quality is not a singular concept but a multidimensional phenomenon *et al.*, 1994). It may be difficult to warrant the quality of either a product or a service without determining the salient aspects of quality.

In the 1990s many manufacturing organizations witnessed the quality revolution which began in the 1980s. This quality revolution has now spread beyond manufacturing organisations to service organisations. This is because quality is considered to be a competitive weapon (Grönroos, 2007). Every organisation must learn to think of itself not as producing goods or services, but as buying customers (Beckford, 2002). It is for these reasons that many organisations base their operations on some of the quality dimensions advocated by the quality gurus.

3.3.1 The Quality Gurus

This section discusses the approaches of two quality gurus, namely W. Edwards Deming and Joseph Juran. It covers the salient features of quality, each guru's method of producing quality, and an assessment of their applicability to service quality in general, and to academic libraries in a Web 2.0/3.0 environment. This framework is advantageous because:

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- it facilitates a comparison between two approaches;

- it provides a means for identifying the key attributes of each approach; and

- an application of the quality concept to Web 2.0/3.0 services in academic libraries will help identify salient quality features for use.

3.3.1.1 W. Edwards Deming

Deming is well known as the person who helped to bring about the Japanese quality revolution. He was a statistician by training and is also associated with the Statistical Process Control (SPC) technique which aims at improving processes through standardization (Flood, 1993; Blankenship & Petersen, 1999; Knouse, *et* al., 2009; Moen & Norman, 2010). Deming's definition of quality is inherent in his philosophies. In his most basic definition, Deming defines quality as "a function of continuous improvement based on reduction in variation around the desired output" (Beckford, 2010). In any event, Deming's perspective is clearly consistent with a two-level definition (Gibbons, 1994). On one level, Deming defines quality in terms of customer satisfaction. Service management literature, including that of libraries, asserts this by indicating that customer satisfaction is the result of a customer's perception of the value received (Sedlock, 2010; Sulek & Hensley, 2010; Wang, 2006; Yeo, 2008). The first determinant of overall customer satisfaction is perceived quality (Brady & Cronin Jr, 2001). The customer is hence viewed as the most important factor in any business. In order to provide quality, one should delight the

customer (Roehm & Castellano, 2002). The emphasis here is on the notion that quality must be defined as a customer-oriented philosophy.

On a second level, Deming defines quality as being multi-dimensional (Gibbons, 1994). Simply put, there are many dimensions to quality. For Deming, quality in itself is relevant only to the individual who is judging it and it will represent different things to different people (Deming, 2002). This idea also reflects Gibbon's view that quality is a multi-dimensional and perspective-based concept. Notably, most early definitions of quality related to the manufacturing sector and included product quality dimensions such as performance, features, reliability, conformance, durability, serviceability, aesthetics, and perceived quality (Garvin, 1984a, 1984b; Miller, 1996). Deming gave a customer-led definition to quality, his main emphasis being on process and his applicability sector mainly being in manufacturing.

Key characteristics of Deming's work, which are also involved in the quality concept, include meeting specifications, continual improvement, designing, and providing products or services that provide satisfaction to the customer. These are all embedded in Deming's quality philosophies. Deming's philosophy focuses on bringing about improvements in quality by minimising uncertainty and variability in the way a product or service is delivered (Reid, 2001; Sower, 2009). Quality in service delivery therefore requires continuous improvement. This borrows from Deming's philosophy on the system of profound knowledge and the 14-point philosophy through the application of the Shewhart cycle (Clark & Clark, 1997;

Spigener & Angelo, 2001; Roehm & Castellano, 2002; Washbush, 2002). Deming sees the organisation as a system whose purpose is to delight the customer. The System of Profound Knowledge (SoPK) flows from this view of business, while the 14 points become the methodology for operationalizing the SoPK (Blankenship & Petersen, 1999; Deming, 2000; Gruska, 2000).

Deming takes an open-system view of organisations. Apart from seeing organisations as purposeful and independent he included customers in his sense of system at a holistic level (Sulek & Hensley, 2010). He, however, emphasised that management is ultimately responsible for all aspects of the organisation and must exercise control over the improvement of organisational processes with those who are actively involved and knowledgeable in the processes (Washbush, 2002). According to Deming, a poor system design was the cause for poor performance. However, most profound in Deming's work was the formulation of his systematic approach to problem solving; an approach which is now commonplace and frequently reinterpreted in other methodologies and is central to the application of the ISO 9001:2000 standard(Beckford, 2010). For example, 'the evaluate, plan, do, check, amend (EPDCA)' cycle in Oakland and Sohal's work (1996).

Deming (2002) underscores the service sector. He sees that the prime role of the service sector in the context of a nation's economy. The service industry has been noted for its reluctance to adopt the 14-points of management, indicating that the points are applicable mainly to the manufacturing sector.

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3.3.1.2 Joseph Juran

Juran defines quality as 'fit for use or purpose' (Beckford, 2010; Chua, 2008; Edmund & Juran, 2008; Sedlock, 2010). Juran's philosophy is perhaps best summed up in saying that "quality does not happen by accident, it has to be planned" (Beckford, 2002:106). His definition of quality is applicable to both manufacturing and service organisations. That is, if an organisation creates the right features in their products or services to meet the needs and expectations of customers, those customers will be satisfied. Unlike Deming, Juran emphasises top and middle management's involvement in achieving quality. He observes that most of the quality problems are a direct responsibility of management.

Juran is well known for his trilogy (Beckford, 2010). The Juran trilogy provides a means for managing quality. It consists of three basic managerial processes namely, planning, control, and improvement (Sower, 2009). While problem solving in the quality control zone is important, it does not attack the underlying causes on the performance level. Quality improvement and breakthroughs in performance will not occur unless all of these contributing breakthroughs are achieved (Chua, 2008). For Juran, quality planning, control, and improvement are the only way out of a quality crisis.

Juran's philosophy and main principles are clear, and he advocated methods for implementing quality. However, Juran does not explicitly recognise the importance of the interdependence of processes and the interactions between people within the organization (Beckford, 2010).

Juran clarifies that the customer is not just the end receiver of the product or service but can be both 'internal and external' (Bisognano, 2004; Chua, 2008; Donaldson, 2004; Forslund, 2007; Levis,*et al*., 2008; Sedlock, 2010). Internal and external may mean anyone to whom a product or service is provided. This is explained through his method of a 'quality planning road map'(Juran, 1989; Flood, 1993).

3.3.2 Planning for Quality

Juran (1989) developed the quality planning roadmap that can be used by managers in various organisations to improve the quality processes.

The quality planning road map has six steps, namely:

1. Identify who the customers are;

2. Determine the customer needs;

3. Translate those needs into your language;

4. Develop product features that can optimally respond to those needs.

5. Develop a process that is optimally able to produce the product features; and

6. Transfer the process to the operating forces.

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The essence of the road map is to lead us to understand customers and their needs. Customer needs have been widely researched and cover vital areas including customer relationship management (Fan & Ku, 2010; Lee, Huang, Barnes, & Kao, 2010). Most important in Juran's quality planning road map are issues relating to the customers and their needs.

The applicability of Juran's philosophies in the service quality sector is quite profound. The trilogy has been cited as an important technique for managers to use in order to have quality breakthroughs (Chua, 2008; Gibbons, 1994; Godfrey & Kenett, 2007). In the 21st century, where technology is driving all services, Juran states that the role of technology is to use the forces of nature and matter to benefit man and to meet the needs of humanity. There is an intersection when the demands of customers and the needs of humanity meet. Through technology and managing things differently, the needs of customers can be met. Technology and quality are different bodies of knowledge that can work together to meet those needs.

According to Deming (2002)

- management comes before technology;
- leadership and the motivation of employees are recognised as important; and
- quantitative methods are used in certain times.

For Juran, if management is responsible for planning, organising, commanding, controlling and co-coordinating, then responsibility should lie with them. Juran

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argues that management is expected to have control of every aspect of the organisation.

3.3.3 A Comparison of the Quality Gurus

In summary, the most notable points from the quality gurus include their characterisation of quality as a customer-led philosophy. It is a philosophy in which organisations respond to customers' expressed wants. Customer-led service organisations focus on understanding the expressed desires of the customers and on developing services that satisfy those desires (Slater & Narver, 1998; Hart, 2003). It is a significant philosophy that academic libraries can incorporate in their application of service quality. Service organisations may use it to build strong one-to-one relationships with their customers to achieve loyalty. One-on-one relationships help service organisations achieve sustained competitive advantage through building and delivering personalised and customised services (Hart, 2003). Effective use of Web 2.0/3.0 technologies are crucial to a customer-led philosophy in academic libraries, and will require customer-led service strategies and policies. This will benefit customers through highly customised and personalised services (Hart, 2003). Some academic libraries are already offering such services through Web 2.0/3.0 and other self-service technologies. The main advantage for self-services is in saving time (Howard & Worboys, 2003).

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Deming's emphasis on process can be adopted in academic libraries through modelling the service delivery processes (Shang & Lin, 2010). Modeling techniques may include service blueprinting. Service blueprinting is a method of planning new services or modifying existing ones developed by Jane Kingman-Brundage (1989).It is used to ensure that all aspects of the service add value to the customer's experience of the service and identify points at which the service system might fail to produce the intended value for customers (Heskett, *et al*., 1997). It is a diagnostic tool that is used for systematically evaluating the service to identify and prepare for potential problems that might ordinarily escape detection(Berry & Parasuraman, 1991). It underscores the need for service quality in order for service organisations to gain a competitive edge. A comparison between Deming and Juran can be summed up as follows:

- Deming's dominant factor is control of variation, Juran's is fitness for purpose.

- Deming's applicability sector is manufacturing, while Juran's applicability is both manufacturing and service.

- For Deming, the primary change agent in the organisation is the top management whose work is to promote quality through the system. Juran's change agent is management through training.

- Deming recommends techniques such as the use of statistical methods, while for Juran they are not crucial.

What emerges clearly from this discussion is that recent ideas of service and quality are connected with the growing empowerment of users (as customers), and with their satisfaction in relation to higher expectations that are technology-linked.

3.3.4 The Concept of Service Quality

The literature on service quality is very rich in definitions, models, and measurement issues. This makes defining service quality a daunting task. In LIS, Hernon and Nitecki (2001) argue that service quality as a multifaceted concept that has not been fully explored. The versatility of the service quality concept makes it difficult to define the concept in terms of a single characteristic or agent(Gibbons, 1994). In order to develop service quality models it is important to understand what customers are really looking for, and what they evaluate.

The service sector, through its gurus Parasuraman, Zeithaml and Berry, has produced service quality dimensions that include tangibles, reliability, responsiveness, assurance, and empathy (Parasuraman, *et al*., 1985; Parasuraman, *et al*., 1988; Cronin & Taylor, 1992). A number of scholars have developed and applied various models of service quality using the original service quality dimensions, and even modified them to accommodate the technological aspects of e-service (Rust, 2001; Zeithaml, *et al*., 2002; Santos, 2003; Hernon & Calvert, 2005; Parasuraman, *et al*., 2005). Over time, many definitions of service quality have emerged, some of which are based on those of (Parasuraman, *et al.,*1988).

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Research on service quality has increased significantly since the 1980s. It is only when the service provider understands how services will be evaluated by the users that it will be possible to identify and steer them in the desired direction (Dabholkar, 1996; Eisingerich & Bell, 2008; Holloway & Beatty, 2008). Grönroos was the pioneer in introducing a service-oriented approach to quality. This was achieved through the model of total service quality (Grönroos, 1984). This approach forms the basis of much research on service quality (Parasuraman, *et al.*, 1985). Conceptualisation and measurement of service quality in the form of models are still difficult areas in service quality research (Robinson, 1999).

3.4 Service Quality Models

In all service quality models the starting point for planning is to have a 'service concept'. A service concept can be any idea about how to make the most of the resources within the organisation and enable them to function optimally to achieve quality results for the customer (Grönroos, 2011). A service concept describes the way in which an organisation would like to have its services perceived by its customers (Heskett, 1986).

From an operations management view, a service concept refers to the service package. It applies to the environment in which goods and services are provided and the way in which the customer is treated (Haywood-Farmer & Nollet, 1991). A

service concept can also be defined as the mix of tangible and intangible elements comprising the delivered service. It defines what is being provided to the customer (Ponsignon, *et al*., 2011). In academic libraries, a service concept may refer to the manner in which library services are packaged and delivered to the customers to meet their information needs to their satisfaction. Alternative terms include service offering, service package, and service bundles.

Technological advances continue to affect both developing and developed economies (Seth, *et al*., 2005). Most organisations in these economies are shifting their focus to maximising profits through increased customer satisfaction. The increasingly competitive nature of service organisations has forced most organisations not only to look at the service delivery processes, but also at the way services are delivered. A service delivery process is explained as the process of interaction between employees and customers (Fitzsimmons & Fitzsimmons, 2000; Grönroos, 2007).

The following section elaborates the service quality concept through a review of the Nordic (European) school and the North American school, as well as their respective service quality models. It is necessary because it provides a methodological framework for this study.

3.4.1 The Nordic (European) School

The Nordic school of service quality is also referred to as the European school. The Nordic school has its origins in the works of Grönroos (1990) and others. The Nordic school has been service oriented in its approach, and not limited by any requirements to stay within the boundaries of existing frameworks and models (Grönroos, 1991). The models in this school share two orientations to service quality.

- The first orientation is the 'customer orientation', requiring relationships to be built throughout the service exchange (Williams & Buswell, 2003).
- The second orientation is 'the process', the production, and management aspects (Gummesson, 1995).

Grönroos supports the view that services are not homogeneous. He emphasizes the significance of who is receiving the service, meaning that it could be an individual or an organisation. Due to the close relationship of the Nordic school of service quality with the industry, Grönroos (1990) looked at service management principles in detail. Grönroos reflected on the service delivery process and suggested that mass production and standardisation of the Taylorism (scientific management) is inappropriate. However, other service organisations have adopted these strategies.

Grönroos suggests that services require teamwork, inter-functional collaboration, and inter-organisational partnerships for successful service delivery that satisfies the

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customers. He maintained that this is different from a Total Quality Management (TQM) culture as the marketing function is left out. The following service quality models in this school are built on the formula that customer satisfaction equals customer perception minus their expectations.

3.4.1.1 The Technical and Functional Model of Service Quality

The technical and functional model of service quality in Figure 7 identifiestwocomponents of service quality; the technical, and functional. Technical quality refers to the result or the outcome of the service. The functional quality refers to the way the service has been delivered.
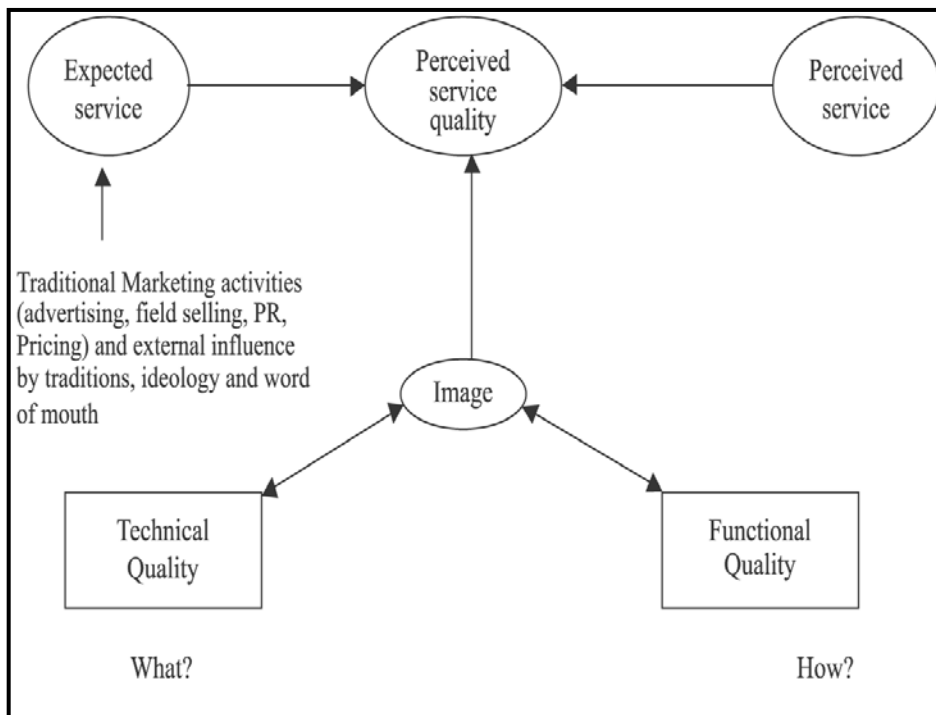
Figure 7: The technical and functional model of service quality (Grönroos, 1984).

In order for service firms to compete successfully they must have an understanding of how consumer perception of service quality is influenced. To improve perceptions means that customer satisfaction must be achieved. It is based on the impact of the technical quality (the what) measured by customers in an objective manner and the functional quality (the how) measured by the customers' subjectivity (Brady & Cronin, 2001; Williams & Buswell, 2003; Gi-Du, 2006).

3.4.1.2 The Total Perceived Model of Service Quality

The total perceived model of service quality is a result of the evolution of Grönroos' original model of 1982. This model has been developed further by members of the Nordic school (Lehtinen & Lehtinen, 1982). It takes a holistic approach in which the expected quality is affected by external factors such as customer needs and 'word of mouth'. The model has similarities with the North American school (see section 3.4.1.2). Grönroos shares *the* same view that customers break down services into the following dimensions: tangibles, reliability, responsiveness, empathy, and assurance, but he added the sixth dimension of recovery. Recovery is the ability of an organisation to rectify mistakes (as judged by the customer). This can improve the customer perceptions of the service provider.

Grönroos does not allude to the measurement of service quality in his works. He however emphasizes that a customer-oriented approach is needed (Seth, *et al.*, 2006).The recovery dimension implies the empowerment of the customer/user in re-

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defining service quality. Grönroos' revised model can be suitable for evaluating e-service quality in academic library because it identifies the human factors that affect user perceptions of service quality.

3.4.1.3 Gummesson's 4Q Model of Service Quality

High levels of perceived quality are achieved when the experienced quality matches the expected quality. Grönroos subsequently combined his model with Gummesson's 4Q model (Gummesson & Grönroos, 1987). This model identified design, production, delivery, and relations quality as the four sources of service quality, and established links with Grönroos' quality perception concept. Gummesson developed a holistic approach to quality (4Q's model) that was transferred from the manufacturing sector. Gummesson devised his quality model to apply to both goods and services. He defined quality by uniting Crosby's (1985) 'conformance to requirements' with Juran's 'fit for use'. Since this model evolved, both Grönroos and Gummesson have focused their research on the importance of service encounters. This approach has led to the marketing paradigm shift into customer relationship marketing (Acker-Hocevar, 1996; Fan & Ku, 2010; Stone & Ozimek, 2010; Kumar, Sunder & Ramaseshan, 2011).

This model may be useful in academic libraries by providing a basis for the design, production, delivery, and customer/user relations in quality service. However, it is

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not detailed enough for the complex service quality situations in a Web 2.0/3.0 environment.

3.4.2 The North American School

The commonality between the North American and Nordic schools lies in the area of basic concepts rather than practical application. The North American school theorists focus on the customer, just like their Nordic school counterparts. This led them to develop tools to measure customer satisfaction in services (Parasuraman, *et al*., 1985). Parasuraman, Zeithaml, and Berry (1985) had proposed that service quality is a function of the differences between expectations and performance along the quality dimensions. In 1990, Zeithaml, Parasuraman, and Berry defined service quality as excellence determined by the difference between customer expectations and perceptions. As a result, a standardised service delivery with a customer-focused approach has been developed. Based on these ideas, they developed a service quality model and its variants, based on the analysis of service gaps.

3.4.2.1 SERVQUAL Gap Analysis Model

The SERVQUAL Gap analysis model illustrates how customers assess quality. It takes into account determinants that may influence the appearance of a gap (Teas, 1993; McCollough, *et al*., 2000; Hernon, 2002; Eastwood, et al., 2005; Seth, *et al.,* 2005). Overall, it aims at identifying the causes of gaps between expected quality

and perceived quality. This could mean that Juran's theory of 'fit for use' is relevant and adequate to describe such a phenomenon (Beckford, 2010).

Zeithaml, Parasuraman, and Berry (1985) expanded the characteristics of service by carrying out research into factors important to customers. The first phase of their research identified ten determinants of service that are important to customers. These were later reduced to five determinants, namely, reliability, tangibles, responsiveness, assurance, and empathy and are used in the service quality framework called SERVQUAL, which they developed (Berry, *et al*., 1990; Philip & Hazlett, 1997; Gi-Du & Jeffrey, 2004; Nagata, *et al*., 2004; Seth, *et al.*, 2005).

Gap analysis is important in service quality and has been used by many researchers to explore factors in predicting customer satisfaction. The *Encyclopaedia of Management* outlines the importance of gap analysis as follows:

- Measuring the gaps is the first step in enhancing customer satisfaction;
- The gap between customer expectations and customer experiences leads to customer dissatisfaction;
- Competitive advantages can be achieved by exceeding customer expectations;
- Gaps analysis is a technique through which service organisations exceed or fall below customer expectations;

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- It is applicable to any aspect of industry where performance improvements are desired; and

- It can be used to address internal gaps such as those between employers and employees (Helms, 2006).

Measuring the service quality gaps is significant because it enables the library managers and practitioners (librarians) to identify service quality problems and to improve efficiency of the service delivery process. The technology-linked empowerment of customers widens the gaps between their expectations and experiences, and contributes to dissatisfaction, but these (power dynamics implicated in user satisfaction) have not yet been systematically investigated in academic libraries.
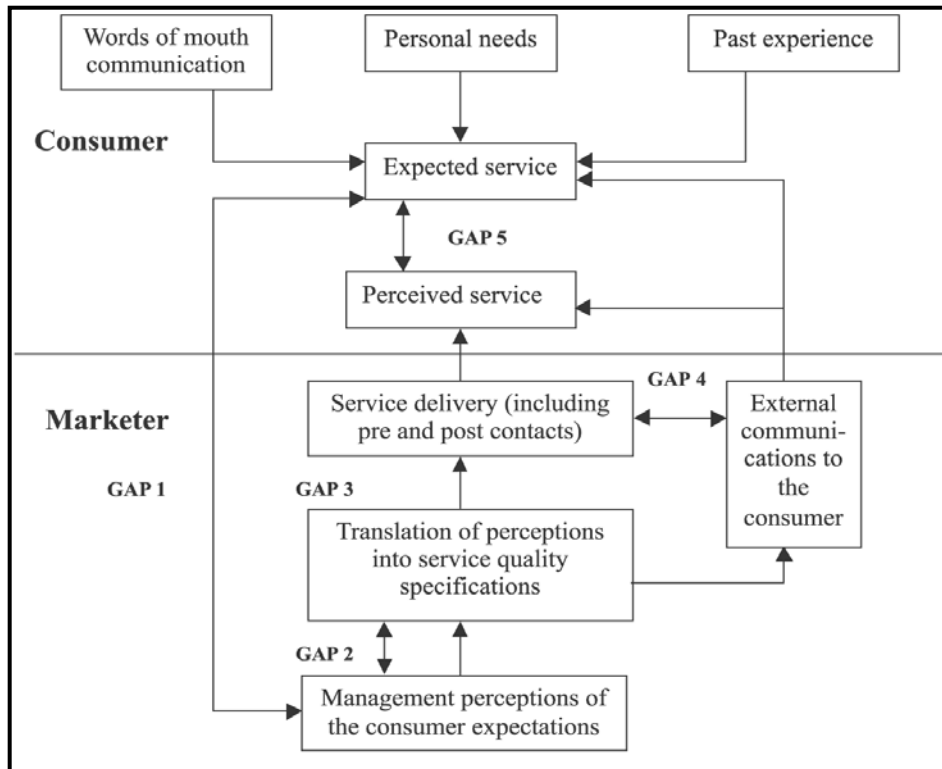
Figure 8: The SERVQUAL gap analysis model (Parasuraman, Zeithaml & Berry, 1985).

According to Figure 8, service quality is a function of perception and expectations (Parasuraman, *et al*., 1985; Ghobadian, *et al*., 1994; Williams & Buswell, 2003; Seth, *et al*., 2005). Many authors have interpreted the SERVQUAL gap analysis model differently. However, they identify the "customer gap" (Gap 5) as the main one because it identifies the discrepancy between the expectations and the actual perceptions. SERVQUAL is designed to measure service quality as perceived by the customer. A high quality service would perform at a level that matched the level that the customer felt should be provided. The level of performance that a high quality service should provide is termed customer expectations. If performance was below expectations, consumers judge quality to be low.

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The SERVQUAL gap analysis model has been adapted for different contexts. The hospitality and tourism sector has applied it to evaluate various aspects of service quality relating to accommodation and restaurants (Saleh & Ryan, 1991; Ryan & Cliff, 1996; Kouthouris & Alexandris, 2005; Home, 2005; Jui-Chi, 2009). The banking sector has used it to measure various aspects of banking services (Karin, 2001; Sang-Lin & Seung, 2004; Raman, *et al.*, 2008; Ladhari, 2009; Mukesh, *et al.*, 2009). The higher education sector has applied it to evaluate quality in various aspects of higher education (Alison, & Alison, 2007; Stodnick & Rogers, 2008; Yeo, 2008; Chatterjee, *et al.*, 2009; Ahmadreza, *et al.*, 2011; Durvasula, *et al.*, 2011; Gareth, *et al.*, 2011).

The marketing sector and other service sectors have used it to measure customer related issues (Mik, 2001; van Iwaarden, *et al.,* 2003; Kilbourne, *et al.,* 2004; Rosenbaum & Wong, 2009).The information systems sector has used it to evaluate the quality of information systems (Badri, *et al.*, 2005; Seth, *et al.*, 2005; Yu, *et al.*, 2008; Shahin & Samea, 2011). Academic libraries have used it to evaluate various aspects of service quality (Campbell, 1995; Nitecki, 1996; Nitecki, 1997; Coleman, 1997; Cook & Thompson, 2000; Nitecki & Hernon, 2000; Trahn, *et al.*, 2001; Ho & Crowley, 2003; Hernon & Calvert, 2006).

However, the SERVQUAL gap analysis model has also been critiqued by several scholars. For example, Asunbonteng, McCleary and Swan (1996) identified the lack

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of validity and reliability in the gaps model with respect to the five main variables, and recommended further research. Mauri, Minazzi, and Muccio (2013) identified a shortfall in the role of communication in customer relations and suggested that this can be activated through user satisfaction assessments.

The analysis of expectations and perceptions as two different entities has been challenged by Shanin and Samea (2010) and Mauri, *et al. (*2013) who prefer a unified approach focusing on perceptions only. Expectations are based on bias about the service, which are difficult to construe and which may change with the actual experience and the familiarity of the customer with the service. The original SERVQUAL gap analysis model has been criticized for not permitting customer feedback (Mauri, *et al.,* 2013).

An improved/updated model modifies the original gaps, and adds eight more gaps (Shahin & Samea, 2010).Figure 9 presents the modified SERVQUAL gap analysis model.
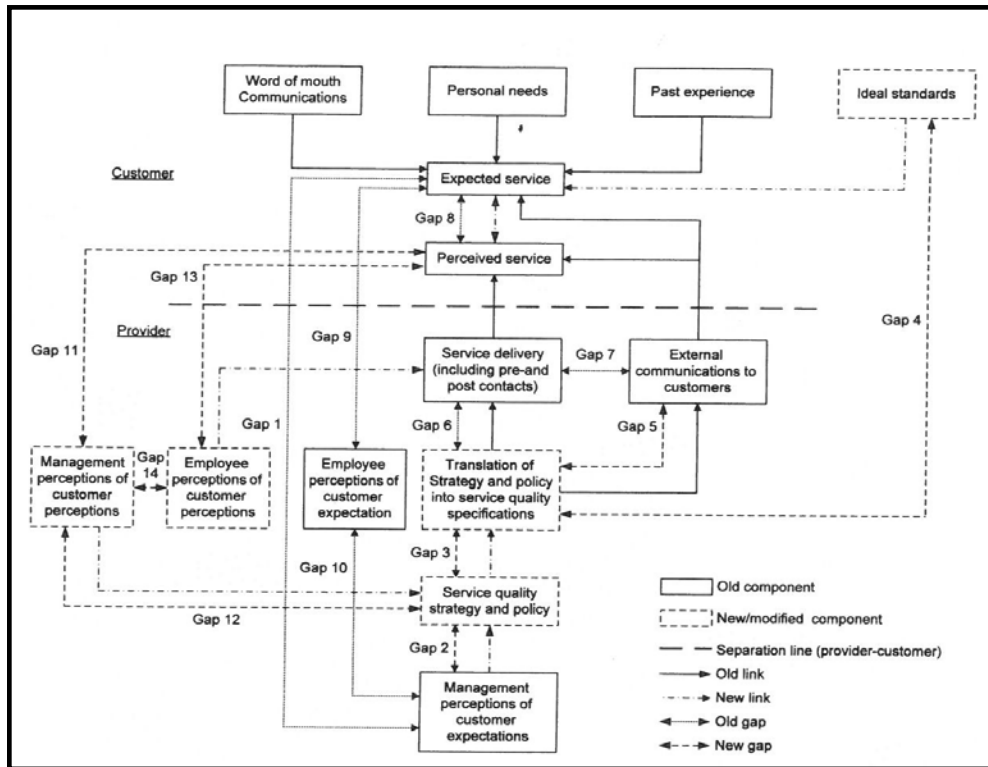
Figure 9: Modified SERVQUAL gap analysis model (Shahin & Samea, 2010).

Figure 9 incorporates the following:

- additional gaps, links, and components;

- a focus on perceptions of service providers and customers in identifying service gaps; and

- an emphasis on the significance of service strategies and policies to eliminate service gaps (Shahin & Samea, 2010).

The additional gaps underscore service quality strategy, policy, and customer perceptions. The right people have to know about service quality strategies and their efforts should be aligned with both management and organizational goals. There is a need for both managers and their employees to understand customer perceptions of

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service quality. It is only when the managers and their employees understand the customers' perceptions of the service quality offered that it can result in them paying more attention to the service delivery process in order to achieve customer satisfaction (outcomes) (Shahin & Samae, 2010).

3.4.2.2 LibQUAL Model of Service Quality

LibQUAL is a diagnostic tool that puts the perceived rating of a library's services into context and helps the manager to prioritise interventions (Roszkowski, *et al.*, 2005). It is based on the SERVQUAL gap analysis model and is available to libraries through a standardised web protocol. LibQUAL allows libraries to understand performance from a user's perspective. While acknowledging the importance and availability of LibQUAL, it was not adopted in this study because:

- it is better utilised by libraries and not by individual researchers;

- It is a customized tool for measuring e-service quality in libraries, and it would be difficult to adapt it to this study; and

- the data from some of the selected research sites is accessible to the researcher.

3.4.2.3 Synthesized Model of Service Quality (Brogowicz, Delene, & Lyth, 1990)

A service quality gap may exist even when a customer has not yet experienced the service but learned about it by 'word of mouth', advertising, or through other media

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communications. The use of this model and related managerial tasks can help managers to improve the success of their service offerings in any industry. This model identifies key variables that require systematic management attention in planning, implementation, and controlling service-marketing strategies that prevent or minimise service quality gaps. It lacks empirical validation and needs to be reviewed for different service settings. The focus on management and management processes are limitations of this tool for use in this study.

3.4.2.4 Performance-Only Model of service quality(Cronin& Taylor, 1992)

The performance-only model is based on the framework of Parasuraman, Zeithaml and Berry (1985) with respect to conceptualisation and measurement of service quality. They developed a performance-only measurement of service quality called SERVPERF. It involves a comparison of computed difference scores with perception. Cronin and Taylor (1992) concluded that perceptions only are a better predictor of service quality. The performance-based SERVPERF is efficient by comparison with SERVQUAL as it directly reduces the number of items by 50 per cent, and the results are better. There is a need for it to be generalised to all types of service settings. Although SERVPERF could be suitable for this study, it would be difficult to operationalize because of the special contexts of this study, and its limited focus on performance only.

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3.4.2.5 Internal Service Quality Model (Frost, & Kumar, 2000)

The internal service quality model is based on the concept of the gap model. The model evaluates the dimensions and their relationships that determine service quality among internal customers (front-line staff) and internal suppliers (support staff) in a large service organisation. This model identifies the relationships between the perceptions and expectations of internal customers, and internal suppliers play a major role in recognising the level of internal service quality perceived. There is a need for this model to be developed and generalised for all types of internal environments.

3.4.2.6 IT-Based Model of Service Quality (Zhu, Wymer, & Chen, 2002)

This model focuses on the linkages among the service dimensions as measured by SERVQUAL. It highlights the importance of IT-based service options. Service providers are increasingly using IT to reduce costs and create value-added services for their customers. It proposes a service quality model that links customer perceived IT based service options to traditional service dimensions. It is however not suitable for use in this study due to its specific focus on costs and other value added services.

3.5 E-SERVQUAL, Web 2.0/3.0 Technologies, and a Critical Evaluation Component

To summarise, in the previous sections the basic concepts of the Nordic and the American schools of service quality, and their respective models were discussed. Table 2compares the basic concepts.

Basic concepts	Nordic School	North American School
Holistic approach to quality	Yes	Yes
Customer oriented approach	Yes	Yes
Determinants of quality	4-6 (see section 3.4.1.1.2)	5 (see section 3.4.1.2.1)
Quantitative measurements of quality	No	Yes
Measurements of customer perceptions	Yes	Yes
Process quality	Yes	Yes
Outcome quality	Yes	Yes
Standardisation of services	No	Yes
Relationship marketing	Yes	Yes

Table 2: A comparison of the North American and Nordic schools (Williams & Buswell, 2003)

While the models in the North American and Nordic schools share similarities in terms of what needs to be done when evaluating service quality, the Web 2.0/3.0 technologies unsettle the traditional power dynamics between academic librarians

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and library users that are revealed in perceptions of satisfaction/ dissatisfaction with e-service offerings. What is therefore needed in this study is an approach to evaluating service quality that will identify the causes and characteristics of these changes in power dynamics, and that will explain how to manage them in order to improve user satisfaction with Web 2.0/3.0 e-service quality in KLISC and GAELIC academic libraries.

The Web 2.0/3.0 technologies require managers of academic library services to develop standardized techniques for their e-services. Zeithaml, *et al*. (1990) state that customers should be provided with personalised services. The Web 2.0/3.0 technologies now make personalized service possible in academic libraries. Academic libraries therefore need service strategies and policies to address the new challenges of Web 2.0/3.0 e-service provision. For example, managers of academic libraries need to include Web 2.0/3.0 competencies, communication skills, reliability, and promptness in their service strategies and policies.

The SERVQUAL gap analysis model is supported by scholars across several disciplines (see section 3.4.1.2.1). If used properly, it enables service managers to identify service quality challenges (Ghobadian, *et al.*, 1994; Asunbonteng, McCleary, & Swan, 1996; Gareth, *et al.*, 2007). What it cannot do well is to probe systematically the underlying causes of satisfaction and dissatisfaction with e-service quality, and reveal the related power dynamics among academic librarians and users that are shifting as result of Web 2.0/3.0 technologies. A critical

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evaluation component that is sensitive to the concept of power is therefore a necessary addition because it will provide a deeper understanding of the power dynamics affecting user satisfaction with e-service quality (see section 2.6).

3.5.1 Critical Evaluation Component

Adding a critical evaluation component to an E-SERVQUAL gap analysis framework will provide a way of both empirically assessing Web 2.0/3.0 e-service quality, as well as identifying the causes and characteristics of these power dynamics underpinning user satisfaction/dissatisfaction with aspects of e-service quality.

3.5.1.1 Benefits of a Critical Evaluation Component

A critical evaluation component has been adapted from critical theory in LIS because of its benefits, and added for use in this study for the following reasons.

The critical evaluation component:

- can help to probe power and empowerment relations between academic library users and librarians. Technology has a liberationist dimension and the use of Web 2.0/3.0 technologies such as Facebook, Twitter, wikis, and blogs empowers library users and librarians to produce, share knowledge, and exchange information, complicating traditional roles and relations (see section 2.5.3).

- can help the academic library management and librarians identify the power dynamics underpinning user satisfaction with Web 2.0/3.0 e-service quality. It entails a deeper understanding of how Web 2.0/3.0 technologies are changing the ways that users interact with academic librarians. For example, their proficiency in Web 2.0/3.0 tools such as Facebook for communication and their own knowledge contributions through library blogs, social tagging, or wikis mean that they are more empowered and no longer as dependent as they used to be (see sections 2.4.1.1 and 2.4.2).

- focuses on issues of e-service process and outcomes. A critical evaluation component can elicit from users what they say about the value of academic librarians. Academic librarians can have value through offering services aimed at improving the information skills of users and hence empowering both of them (see section 2.5.2).

- can be used to identify the power dynamics affecting user satisfaction in Web 2.0/3.0 e-service quality. This may produce ways to improve e-service processes and outcomes, and improve user satisfaction with e-service quality.

- provides deeper insight into e-service quality issues. A critical evaluation component can apply and test critical theory ideas empirically in LIS, making a novel contribution to the discipline.

The critical evaluation component complements the E-SERVQUAL gap analysis model to provide a more comprehensive framework for investigating the hidden

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power dynamics causing service quality gaps in a Web 2.0/3.0 environment (see section 4.1). Academic library managers and librarians will be able to apply the critical evaluation component to detect and narrow e-service quality gaps linked to the power dynamics that influence user satisfaction and dissatisfaction.

3.6 Summary

This chapter has reviewed extant literature on service and quality concepts together with their philosophical underpinnings and theoretical applications. User satisfaction is important and implicit in thee-service quality literature, and models reviewed in this chapter. The chapter used the literature to produce a fitting and appropriate theoretical framework for the study. It introduced the critical evaluation component that will provide a deeper understanding of the power dynamics affecting user satisfaction with the Web 2.0/3.0 e-service quality in academic libraries. The next chapter discusses how the framework will be applied by explaining the research methodology for this study.

CHAPTER 4

RESEARCH METHODOLOGY

We are in an information age, but information is not enough. Action is what unites every great success–Anthony Robbins

4.0 Introduction

The previous two chapters centred on distinctive discourses, aimed at developing an integrated theoretical framework. This chapter explains the methodological implications for applying the framework to answer the principal and subsidiary research questions (see section 1.4). The data collected should therefore answer the principal research question which is: **How can a study of the new power dynamics in a Web 2.0/3.0 environment help to improve user satisfaction with e-service quality, and to strengthen the democratic roles of academic libraries?**

The evidence to answer to this question will be obtained through quantitative and qualitative investigation. Quantitative and qualitative approaches will produce two types of data. Quantitative data will show the statistical rankings of the Web 2.0/3.0 e-service quality in the selected KLISC and GAELIC academic libraries (see section 3.5.1). The qualitative data will reveal the power dynamics underpinning user satisfaction or dissatisfaction with the Web 2.0/3.0 e-service quality in the selected

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KLISC and GAELIC academic libraries. User satisfaction and dissatisfaction with the Web 2.0/3.0 e-service quality are broached through the critical theory concepts of power and empowerment (see section 2.5.3). This chapter covers the following:

- research design;

- research sites and sampling techniques;

- target groups;

- data collection methods;

- data coding, analysis and interpretation;

- validity and reliability of data; and

- ethical considerations.

4.1 Research Design

The study uses an embedded mixed methods research design (Creswell & Plano-Clark, 2011). It will collect quantitative and qualitative data using an online survey, analyzing, and interpreting both data sets in a single study.Combining quantitative and qualitative approaches will provide a better understanding of the research problem (Creswell & Plano-Clark, 2011). An embedded research design has two components, namely core and supplementary. The core component in this study is the quantitative data generated from the E-SERVQUAL gap analysis instrument, and the supplementary component is the qualitative data generated from critical theory-based open-ended questions, which will generate deeper insights into the power dynamics underpinning user satisfaction (Morse, 2010; Green, 2012).

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Figure 10 presents a typology of the embedded research design for this study.
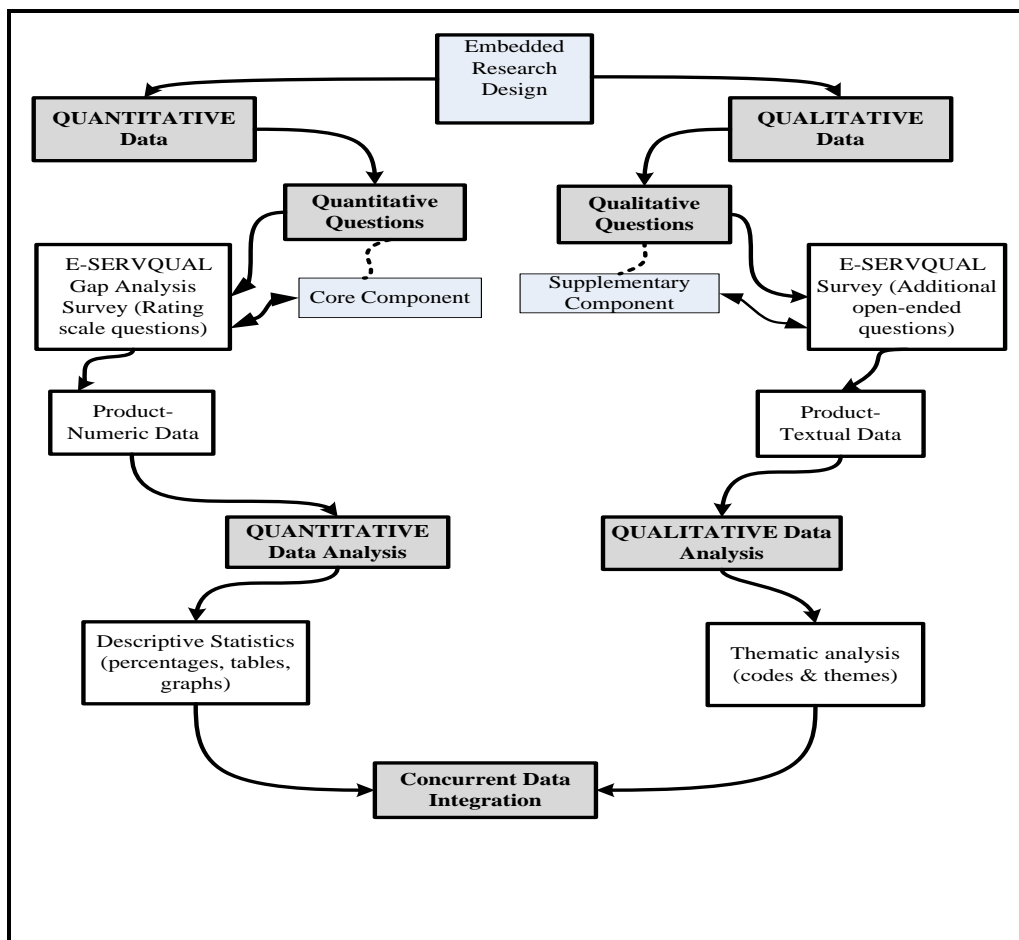
Figure 10: Typology of the Embedded Research Design [adapted] (Morse, 2010; Creswell Plano-Clark, 2011)

Figure 10 derives from literature on embedded mixed methods research designs. It shows the concurrent/simultaneous processes of collecting and analyzing both the quantitative and qualitative data. The qualitative dataset will enrich the results from the quantitative data set by providing deeper insights into the power dynamics

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underpinning user satisfaction (Morse, 2010; Creswell & Plano-Clark, 2011).In this study, the embedded mixed methods research design focuses on a pragmatic approach to evaluating the Web 2.0/3.0 e-service quality. The pragmatic approach to answering evaluative questions is integral to evaluation practice (Maxcy, 2003; Rallis, & Rossman, 2003; Teddlie, & Tashakkori, 2012). The embedded mixed methods research design is pragmatic in the sense that it seeks to provide useful information based on a sequence of decisions (Maxcy, 2003; Rallis, & Rossman, 2003). According to Creswell and Plano-Clark (2011), a pragmatic approach gives a researcher freedom of choice in selecting research techniques and procedures that are best suited for each study.

The next section discusses the quantitative and qualitative approaches that will be applied to this study.

4.1.1 Quantitative Approach

A quantitative approach is used to measure a problem by way of generating numerical data or data that can be transformed into useable statistics. Quantitative data enables standardised and objective comparisons to be made through formulating facts and uncovering patterns in research. The measurements of quantitative research permit an overall description of phenomena in a systematic and comparable way (Punch, 2009). The procedures for data analysis in quantitative research are well developed and codified and bring objectivity to a study.

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The quantitative approach constitutes the core component in this study. This study will apply a quantitative approach to data collection through an online survey using the E-SERVQUAL tool. E-SERVQUAL has been selected for this study because it is a standardized tool that has been tested in many disciplines (see section 3.5.1). It can be adapted for other purposes. LIBQUAL, which is often used for e-service quality evaluations in academic libraries, cannot be modified or adapted for use by individual researchers, and is also monitored through a centralized remote database beyond the researcher's control. It is therefore not suitable for this study.

4.1.2 Qualitative Approach

Qualitative research involves collecting information about personal experiences, introspection, life story, interviews, observations, historical interactions, and visual text (Denzin & Lincoln, 2003). This definition underscores the type of data generated, which may include text, images, or sounds (Nkwi, *et al*., 2001). A qualitative approach can be used to uncover trends in thought and opinions, and to dig deeper into the research problem. The critical evaluation component will be used to generate qualitative data (see sections 3.5.1 and 3.5.1.1).

4.2 Research Sites and Sampling Techniques

The research sites for this study are selected academic libraries from two library consortia. KLISC is Kenya's national library consortium that was established in 2003. In 2014 it had 94 member institutions, including academic, research and

national/public libraries (KLISC, 2014). Its mission is to 'provide leadership and synergy building in knowledge and information resources sharing through capacity building, advocacy, networking and collaborations' (KLISC, 2014).Some of its objectives include promoting intellectual freedom and the adoption of ICT services among member institutions, as well as enhancing the provision of learning resources and access to information.

GAELIC is a regional consortium established in South Africa in 1996. It was later incorporated into the South African National Library and Information Consortium (SANLiC), initiated in 1999 by representatives of several regional academic library bodies, which were all at that time sub-committees of the regional academic consortium (SANLiC, 2014). In 2014 SANLiC had 23 members drawn from South African higher education libraries, and the national research institution libraries. Some of its objectives include skills development and capacity building of member library staff and seeking opportunities for resource sharing and cooperative purchasing, as well as sharing existing resources and exploring ways of cooperation and collaboration, particularly in the IT-enhanced field.

The research sites for this study were identified through a two-step procedure. The first step involved a Website content analysis of the library Websites in all the university libraries in KLISC and GAELIC. Babbie (2004) defines content analysis as the study of recorded human communications, such as books, websites, paintings, and laws. This method provides new insights, increases a researcher's understanding

of particular phenomena, and informs practical actions (Krippendorff, 2004). Websites and Webpages are growing into one of the main types of materials that are studied using content analysis. Website content analysis led to the identification of those KLISC and GAELIC academic libraries that actively use Web 2.0/3.0 technologies such as Facebook and Twitter for servicing their library users. The second step was based on purposive sampling techniques. These two steps provided the basis for selecting the research sites.

4.2.1 Purposive Sampling Technique

A purposive sampling procedure was used to select the research sites and librarians in KLISC and GAELIC, based on specific criteria. Some features include:

- achieving representativeness for comparability (Teddlie & Yu, 2007). Representativeness defines how well or how accurately something reflects upon a sample. The research sites and their professional librarians in this study are capable of being compared because they share features. For example, the sites are academic libraries located in urban areas, and have relevant ICT infrastructure. The librarians are therefore representative of a group of workers in a knowledge society (see section 1.1.1).

- selection based on 'set criteria'. The criteria included direct link to Web 2.0/3.0 tools such as Facebook or Twitter from the library webpage; active use of the library Facebook or Twitter pages with blogs by librarians and

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library users; frequency of blogs posted, and user likes, or comments on such

blogs.

The table below gives a summary of the KLISC and GAELIC academic libraries

that met the 'set criteria', and could be included in the study as research sites.

KLISC Research Sites (Kenya)	GAELIC Research Sites (South Africa)
Kenyatta University Library	University of Pretoria Library
Strathmore University Library	University of South Africa Library
University of Nairobi Library	University of Witwatersrand Library
Jomo Kenyatta University of Technology Library	University of Johannesburg Library

Table 3: Research sites in KLISC and GAELIC

Some of these research sites were excluded from the study based on availability of

time, money, and the individual institution's willingness to participate. The excluded

sites are Kenyatta University library, University of South Africa library, and

University of Witwatersrand library. The research sites were therefore reduced to

from eight to five. Three academic libraries from KLISC namely Strathmore

University library, University of Nairobi library, and Jomo Kenyatta University of

Technology library participated in the study. Two sites from GAELIC namely

University of Pretoria library and University of Johannesburg library also

participated in the study. Some of the research sites sought anonymity during the site

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visits (see section 4.7). The researcher randomly renamed the selected sites as site A to E for the purposes of data codification, analysis, and the discussion of findings.

4.3 Target Groups

Sampling is the selection of cases from wider populations (Trochim, 2006). Sampling is the link between the study population and its generalisation to the wider population. Sampling has profound effects on the overall study. The units of analysis of a sample may be individuals, institutions, and communities (Dattalo, 2008). The main aim of sampling is to get a representative sample. Connaway and Powell (2010) and Struwig and Stead (2004) cite some of the basic factors that need to be considered when determining a sample size. These factors include:

- basic characteristics of a population, that is whether it is homogenous or heterogeneous;
- objectives of the study; and
- data analysis and credibility.

These were used to guide the sampling procedure.

4.3.1 Professional Librarians

Professional librarians who work with library ICTs such as Web 2.0/3.0 technologies have been selected for this study because they are the foot soldiers that are always in contact with the library users and have had experiences that can be highlighted. The researcher made site visits to all the selected research sites and

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requested the ICT directors to provide email addresses of the professional librarians in each site who met the set criteria. The set criteria for the professional librarians selected was limited to those with the minimum qualifications of a Bachelor's degree in LIS, or equivalent qualifications, and respond to online reference queries using the Web 2.0/3.0 technologies. Through their professional skills, knowledge, and experience, they possess librarian power and are able to identify most of their user's information needs. They have been empowered through their library and information skills training. They can also provide an indication of management perceptions of user satisfaction.

4.3.2 Postgraduate Students

The Master of Business Administration (MBA) students, and Master of Library and Information Science (MLIS) students, constituted the sample. The sample was drawn from the students who were currently registered at the time the data collection process commenced. The email addresses of the students were sought from their subject librarians and faculty administrators. This sample represents a group of library users who use the Web 2.0/3.0. As postgraduate students, they can be able to identify the gaps in Web 2.0/3.0 e-service provision in their academic libraries. They can also share their experiences relating to the power dynamics in their respective academic libraries.

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4.4 Data Collection Methods

The main data in this study was collected through an online survey using an E-SERVQUAL tool that was adapted to collect both quantitative and qualitative data. An online questionnaire with similar questions was sent to the two target groups (selected professional librarians and post graduate students) in all the five research sites. However, some data was also gathered through website content analysis and site visits (see sections 4.3.1 and 4.6). The components of the questionnaire are discussed in the next section.

4.4.1 Questionnaires

Questionnaires are a set of questions for submission to a number of persons to get data for a research study. They have important advantages over other techniques for collecting survey data. This study deployed two sets of the E-SERVQUAL online questionnaires, namely for the professional librarians, and the postgraduate students in the five research sites. The E-SERVQUAL tool was divided into three parts A-C (see Appendices E and F). Part A is about demographics, and Web 2.0/3.0 skills and competencies. Part B is a core component, which covered three E-SERVQUAL Gap Analysis dimensions, namely system quality, service quality, and information quality. Part C is a supplementary component based on the critical evaluation component with open-ended questions. The core component and supplementary component are discussed briefly in the next sections.

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4.4.1.1 System Quality

System quality measures the quality in the use of Web 2.0/3.0 applications at the level of its interface features. According to Sigala and Sakellaridis (2004), Web 2.0/3.0-enabled websites also provide customers access to social networks. This allows the library user participation to be measured by the E-SERVQUAL factors. For the purposes of this study, the following three factors regarding the website interface features are included:

- Customisation/personalisation: The evaluation includes functions of how much and how easily the website can be tailored to an individual user's preferences, including links to Web 2.0/3.0 tools (Zeithaml, *et al.,* 2002).

- Usability/Ease of use: The evaluation includes the Website's simplicity of use, and functions that help users find the Web 2.0/3.0 technologies without difficulty, and if it can be manoeuvred easily and quickly.

- Reliability: The evaluation includes things like correct technical functioning of the site, including the Web 2.0/3.0 technologies (Sigala & Sakellaridis, 2004).

- Responsiveness: It measures the readiness of library staff in providing service. It includes timeliness in delivering information needed or making new information available by posting availability on Web 2.0/3.0 technologies such as Facebook, Twitter, or RSS feeds.

4.4.1.2 Service Quality

Service quality is the quality of the interaction between user and Web 2.0/3.0 applications (Almeida, *et al.,* 2010). For the purposes of this study, this dimension is further sub-divided into four factors:

- Assurance: It measures the knowledge of the library staff and their ability to work with Web 2.0/3.0 technologies, whether they have the right competencies or an understanding of the information resources.

- Empathy: It measures the attitude of the library staff towards users through their interactions using the Web 2.0/3.0 technologies.

- Communications: It measures the ability of librarians to keep library users informed about events, and other developments in the library using the Web 2.0/3.0 technologies such as Facebook or Twitter (Almeida, *et al.,* 2010).

4.4.1.3 Information Quality

Information quality captures the quality of content shared, using any Web 2.0/3.0 tool. Information quality will include the following factors:

- User satisfaction: It refers to the opinion of the user about a specific service which they use (Bailey & Pearson, 1983). User satisfaction measures the extent to which users believe their information requirements are met for example through the Web 2.0/3.0 technologies that are available to them.

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This study suggests that the power dynamics in a Web 2.0/3.0 academic library environment impact on user satisfaction (see sections 2.6 and 3.5.1). The analysis of data from this section will be comparative, meaning that individual factor ratings/scores will be ranked across all the libraries within the study (Hernon & Calvert, 2005).

The quantitative data needs to be supplemented with qualitative data, hence the need for the critical evaluation component.

4.4.1.4 Critical Evaluation Component

This section includes additional open-ended critical theory-based questions (see section 3.5.1). The open-ended questions yielded qualitative data that was used to provide a deeper understanding on the causes of user satisfaction and/or dissatisfaction, and the characteristics of the power dynamics underpinning the Web 2.0/3.0 e-service quality in the selected KLISC and GAELIC academic libraries. The qualitative questions seek to identify power and empowerment relations between academic librarians and their library users in a Web 2.0/3.0 environment. This data is crucial to formulating a Critical Evaluation strategy (see chapter 7).

4.5 Data Coding, Analysis, and Interpretation

This study generates both quantitative and qualitative data. The quantitative data will be coded according to the E-SERVQUAL factors. The qualitative data in this study will be thematically coded (Struwig & Stead, 2001). Each site produced data

from the professional librarians and the postgraduate students. Two approaches were used for analysis of the data, and are discussed in the next sections.

4.5.1 Descriptive Statistics

The purpose of descriptive statistics is "to enable a researcher to meaningfully describe a distribution of scores or measures using a few indices or statistics" (Struwig & Stead, 2001:158). This study applies measures of central tendency, such as the arithmetic mean, to determine the typical scores. The quantitative data will be analysed using *Ms Excel* and includes mean scores for E-SERVQUAL factors from the five research sites. Due to the nature of the data and the methodology, this study will also apply a gap analysis in order to assign value to the data sets and identify the highest ranking factors in e-service quality (see section 3.5). Additionally, where applicable the data is described through graphs, tables, and percentages.

4.5.2 Thematic analysis

The *ATLAS.ti* software is used in the analysis of the qualitative data based on a thematic approach. Themes emerging from the quantitative and/or qualitative data are used in the coding and analysis. The qualitative data will be displayed using ATLAS.ti-generated network views. These network views illustrate code relations in the various themes (see section 5.5).

4.6 Validity and Reliability of Data

Validity is concerned with the accuracy of the data collected. Therefore, a valid questionnaire will enable accurate data to be collected (Saunders, *et al.,* 2009). According to Meijer, Verloop and Beijaard (2002:145) "triangulation is a method of highest priority in determining internal validity in qualitative research". Basically, triangulation strategy acknowledges that no single method in social science research is a perfect measurement of constructs under consideration (Denzin, 2003). This study applies methodological triangulation through multiple methods to collect data such as library website content analysis, site visits, and questionnaires.

Reliability is concerned with the ability of the procedures of data collection and analysis to generate the same results on other occasions. There are four threats to reliability, namely participant error, participant bias, observer error, and observer bias. According to Saunders, Lewis, and Thornhill (2009), participant errors mostly occur as respondents' answers change according to the time and the day they answer questions. However, the online questionnaire used in this study gave the participants an opportunity to respond to the questions during their own time. In addition, the online questionnaires allowed the respondents to save, exit, and return later to complete the questionnaire at a different time. As a result, participant error in this study was minimised.

4.7 Ethical Aspects

There are five stages in research that could generate ethical issues. According to Saunders *et al.* (2009), these could arise during the formulation of the research topic, research design stage, data collection, data analysis, and during the reporting of the study findings. The questionnaires were submitted to the Research Ethics and Integrity Committee of the Faculty of Engineering, Built Environment and Information technology at the University of Pretoria for approval (see Appendix B). Permission to conduct the research was further sought from the Department of Higher Education in Kenya, and from the individual universities that were selected as research sites (see Appendix C).

Informed consent was sought through a covering letter that was attached to the questionnaire to ensure participants' anonymity and confidentiality (see Appendix D). Voluntary informed consent means that the participants must agree to participate without threat or undue inducement (voluntary), must know what a reasonable person in the same situation would want to know before giving consent (informed), and must explicitly agree to participate (consent) (Lapan, *et al.*, 2012). However, during the data collection process, some research sites requested anonymity (as research sites) and the researcher was obligated to grant this request and therefore has not mentioned the names of the research sites (see chapter 5). The obligation to grant or not to grant anonymity upon request can generate serious ethical issues. Each researcher has the responsibility of protecting the confidentiality of the information gathered from individual research respondents.

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4.8 Summary

This chapter introduced the embedded mixed-method research design, and described the various methodological approaches. It discussed the research sites, target groups, sampling techniques, data collection methods, issues relating to validity, reliability, and how the qualitative and quantitative data generated by the methods will be analysed. It also explained steps taken to observe the ethical requirements of obtaining the data. This data is presented and analysed in Chapter 5.

CHAPTER 5
DATA PRESENTATION AND ANALYSIS

Knowledge is only potential power. Power is the ability to act.—Anthony Robbins

5.0 Introduction

This chapter presents the results of the questionnaires, the patterns of the results, and analyses of their relevance to the research questions. The data tabled in this chapter will be interpreted in chapter 6. Due to the nature of this study and the subject (e-service quality) under investigation, some of the research sites requested anonymity. Research site anonymity was applied in accordance with the ethics consent agreement (see section 4.7). The data will therefore be presented according to the research sites, renamed as Site A to Site E.

The chapter is structured as follows:

- Overview of the data collection instruments and the questionnaire response rates;

- Usage and awareness of Web 2.0/3.0 among postgraduate students in research sites A-E;

- Librarian usage of and competencies in using Web 2.0/3.0 technologies in research sites A-E;

- Evaluation of Web 2.0/3.0 e-service quality using the E-SERVQUAL gap analysis framework in research sites A-E; and

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- Critical evaluation of power dynamics underpinning user satisfaction in sites A-E.

5.1 Overview of the Data Collection Instruments and Questionnaire Response Rates

The data was collected using the following instruments:

- online questionnaires;

- analysis of library websites (see section 4.2); and

- site visits (see section 4.2.2).

The questionnaires are attached as appendices at the end of the study.

5.1.1 Pre-testing of Data Collection Instruments

The two sets of questionnaires were piloted at the University of Pretoria using both professional librarians at the University's library, and postgraduate students in the Department of Information Science. After pre-testing, the relevant corrections were implemented based on the recommendations of respondents.

The questionnaires were emailed to all respondents as a web link to an interactive survey using the Qualtrics Survey software, licensed for use by the University of Pretoria. The researcher created specific email survey links for each research site. Each site had two links; one link for the questionnaire for librarians, and the other link for the postgraduate students. The links were remotely monitored by the

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researcher who was able to track the progress in the data collection process. The data collection process was conducted for a period of eight weeks. During this period the researcher sent weekly reminders to the respondents requesting them to complete their questionnaires. Table 4presents an analysis of the questionnaire response rates.

5.1.2 Questionnaire Response Rate

	Librarians Response rates			Postgraduate students Response rates		
	Sent	Received	Response Rate %	Sent	Received	Response Rate %
Site A	12	8	66	50	36	72
Site B	6	4	67	50	35	70
Site C	4	4	100	30	11	37
Site D	24	16	67	50	25	50
Site E	8	3	38	30	13	43
Total	54	35	65	210	120	57

Table 4: An analysis of the questionnaire response rates

Table 4 indicates that a total of 54 questionnaires were sent to the librarians and 35 questionnaires were received back from all the research sites. The overall response rate for librarians in this study is 65 per cent.

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The sampling of librarians was done through purposive sampling. Through an initial site visit, the researcher sought to identify the target group for each library. The researcher met and discussed the aim of the research with the librarian(s) in charge of ICT (director level). The ICT directors then selected the professional librarians that worked with postgraduate students and that used the Web 2.0/3.0 technologies in their work. These groups formed the target sample representing librarians in this study. This process was done in all five of the research sites.

An analysis of the postgraduate students questionnaire response rates in table 5 indicate that a total of 210 questionnaires were sent to postgraduate students in the five research sites, and that 120 completed questionnaires were received back. The overall response rate for the postgraduate students in this study is 57 per cent.

The postgraduate students were selected because they represent a group of library users with personal and unique information needs. The unique information needs manifest in the scope of their masters' degree dissertation research topics. They were also selected on the basis of their general knowledge of ICTs and of service quality. In all the research sites the Master of Business Administration (MBA) students and Master of Library and Information Science (MLIS) students constituted the sample (see section 4.3.2).

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5.1.3 Challenges Encountered

There were problems experienced during the data collection process, especially in the research sites in KLISC.

5.1.3.1 Permission to Collect Data

Obtaining a research permit in Kenya was extremely difficult. The researcher was given unfavourable options by government officials, such as being asked to affiliate with a local (Kenyan) University before being granted permission to collect data. Some research sites demanded that the researcher should seek institutional permission afresh from the University Vice-Chancellor. This procedure caused delays of over two months to complete the requests.

5.1.3.2 Low Response Rates in Some Sites

There was a low postgraduate student response rate from Site C in KLISC. The reason cited for the low response included poor timing (i.e. students were sitting for exams). Site E in GAELIC had low librarian and student response rates. The researcher did several follow-ups via email and a site visit, but this did not yield positive results. The responses from postgraduates in Site E also had incomplete questionnaires that were excluded from data analysis.

5.2 Usage of the Web 2.0/3.0 Technologies among Postgraduate Students and Librarians

This section presents data on usage of the Web 2.0/3.0 technologies both inside and outside the library websites. The data is derived from part A of both the Postgraduate student and librarian questionnaires (see appendices E and F).

5.2.1 Postgraduate Students Usage of Web 2.0/3.0 Technologies
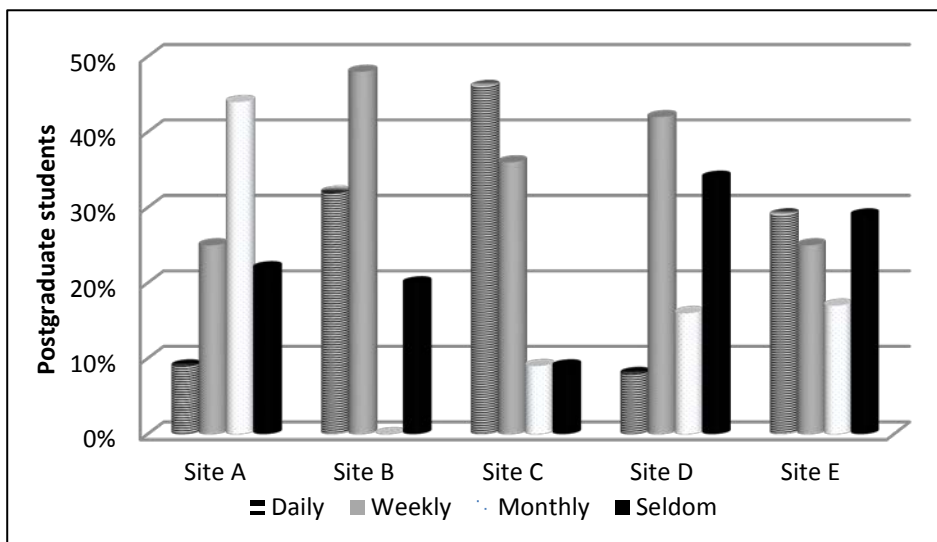
Figure 11: Postgraduate students' frequency of visits to the library website

The data in Figure 11 indicates that the highest daily visits to the library website are from Site C with 46 per cent. The highest weekly visits are from Site Bwith48 per cent. The highest monthly visits are from Site A with 44 per cent. There were also postgraduate students from all five research sites who seldom visited the library website.

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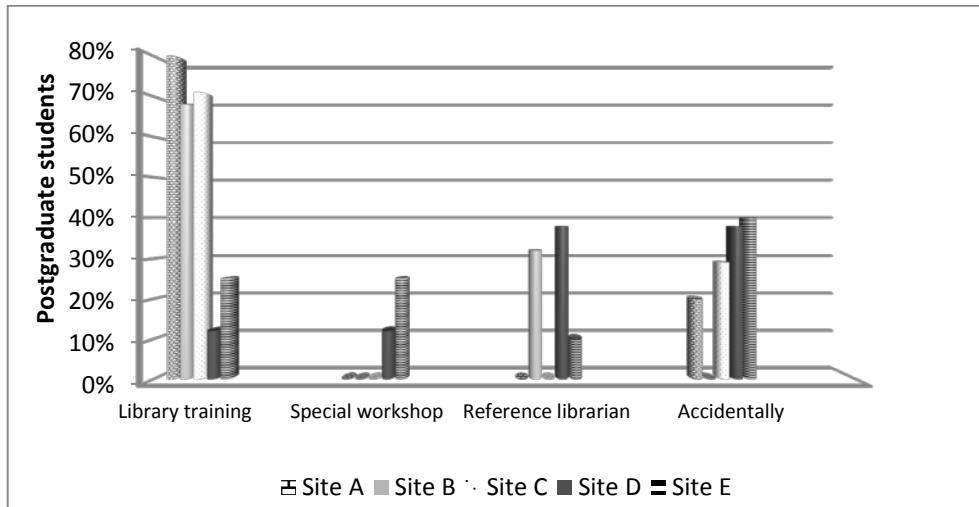
Figure 12: Postgraduate students' awareness of the Web 2.0/3.0 technologies

The data in Figure 12 indicates that library training was significant in creating awareness of Web 2.0/3.0 technologies in Sites A (80%), C (71%), and B (68%). There are 38 per cent of respondents from Site D and 32 per cent from Site B who indicated that they were made aware of the Web 2.0/3.0 technologies in their libraries by their reference librarian. There were also postgraduate students who indicated that they accidentally became aware of the Web 2.0/3.0 technologies in their libraries as follows: Site E, 40 per cent; Site D, 38 per cent; Site C, 29 per cent; and Site A, 20 per cent.

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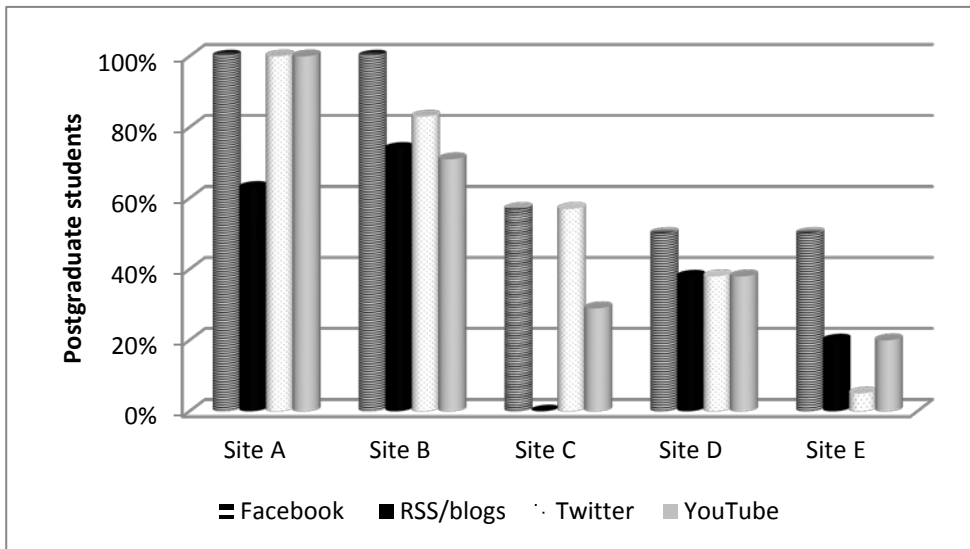
Figure 13: Web 2.0/3.0 tools used by postgraduate students from their library website

The data in Figure 13 identifies the Web 2.0/3.0 technologies that the postgraduate students used in their libraries. Facebook, Twitter, and YouTube were the most commonly used in all the research sites. RSS feeds and blogs were used by postgraduate students in all research sites except Site C.
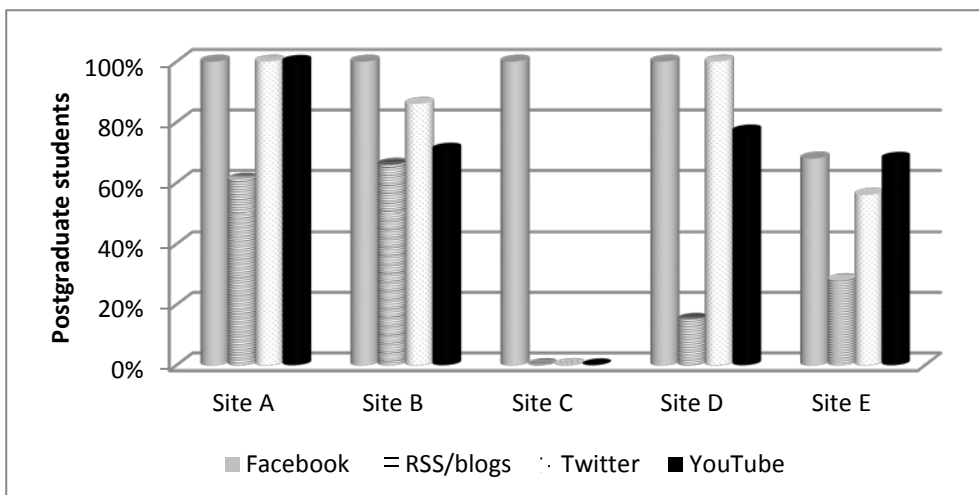
Figure 14: Web 2.0/3.0 tools used outside the library website by postgraduate students

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The data in Figure 14 indicates that the postgraduate students from all sites (100%) used Facebook outside of the library website. The majority of the postgraduate students from Sites A, B, D, and E (68%) used YouTube, Twitter, and blogs outside of the library website. The postgraduate students from Site C did not use Twitter, YouTube, RSS feeds, and blogs outside of their library.

5.2.2 Librarians' Usage of Web 2.0/3.0 Technologies
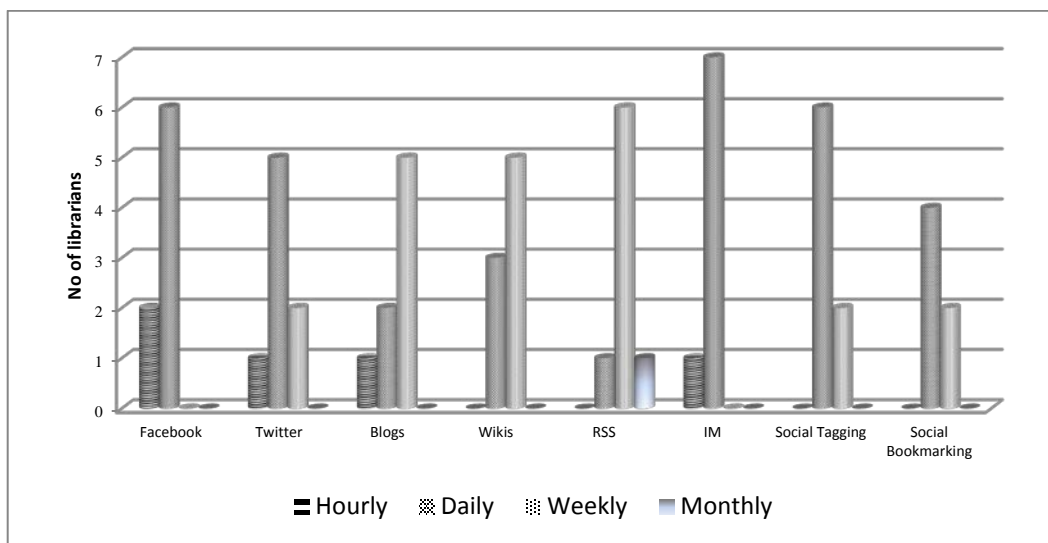
Figure 15: Frequency of librarians' personal usage of Web 2.0/3.0 technologies Site A

The data in Figure 15 on the frequency of usage of Web 2.0/3.0 technologies indicates that most librarians used them daily and weekly. Only one librarian used the Web 2.0/3.0 technologies monthly. Some librarians also used the Web 2.0/3.0 technologies hourly. The frequently used technologies include Facebook, Twitter, and IM.

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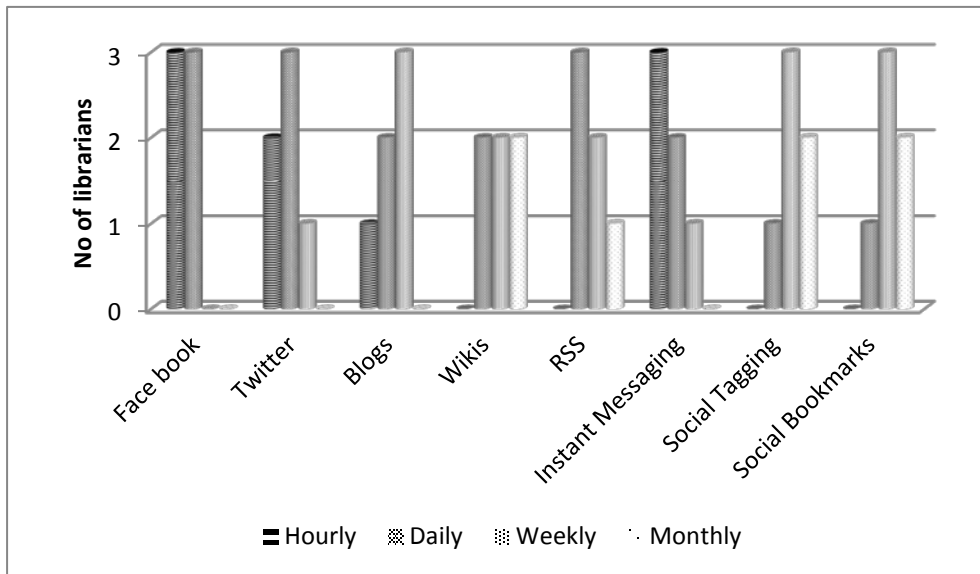
Figure 16: Frequency of librarians' personal usage of Web 2.0/3.0 technologies Site B

The data in Figure 16 on the frequency of usage of Web 2.0/3.0 technologies indicates that that most librarians used them daily and weekly. Some librarians also used Web 2.0/3.0 technologies hourly and monthly. All of the Web 2.0/3.0 technologies included in the study, that is Facebook, Twitter, Blogs, Wikis, RSS, IM, Social Tagging, and Social Bookmarking, were used daily and weekly.

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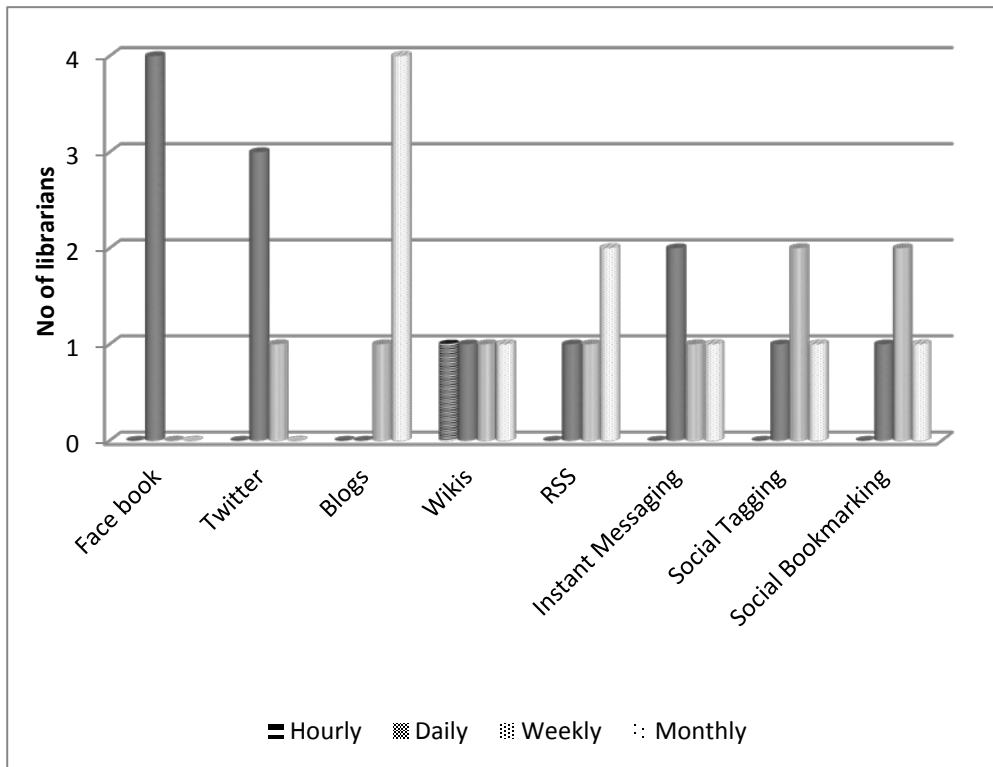
Figure 17: Frequency of librarians' personal usage of Web 2.0/3.0 technologies Site C

The data in Figure 17on the frequency of usage of Web 2.0/3.0 technologies indicates that most librarians used them daily and weekly. Some librarians used the Web 2.0/3.0 technologies monthly. All the Web 2.0/3.0 technologies included in the study, that is Facebook, Twitter, Blogs, Wikis, RSS, IM, Social Tagging, and Social Bookmarking were used daily, weekly, and monthly.
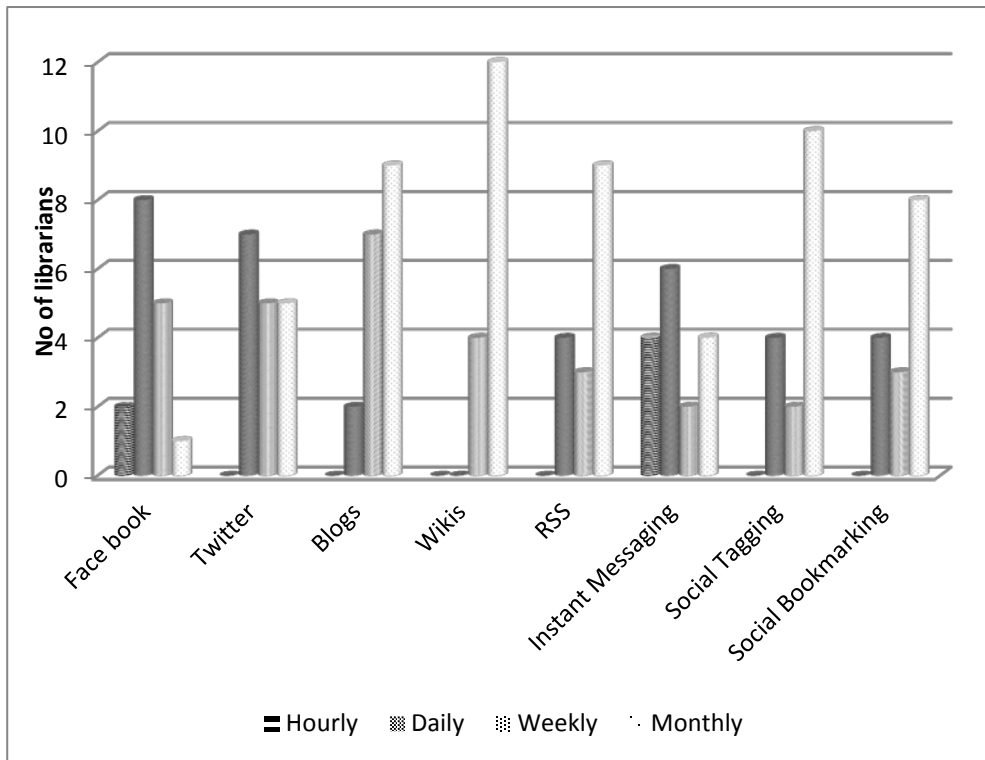
Figure 18: Frequency of librarians' personal usage of Web 2.0/3.0 technologies Site D

The data in Figure 18on the frequency of usage of Web 2.0/3.0 technologies indicates that most librarians used them daily and weekly. Few librarians used the Web 2.0/3.0 technologies hourly. Some librarians used the Web 2.0/3.0 technologies monthly. All the Web 2.0/3.0 technologies included in the study, that is Facebook, Twitter, Blogs, Wikis, RSS, IM, Social Tagging, and Social Bookmarking were used daily, weekly, and monthly.

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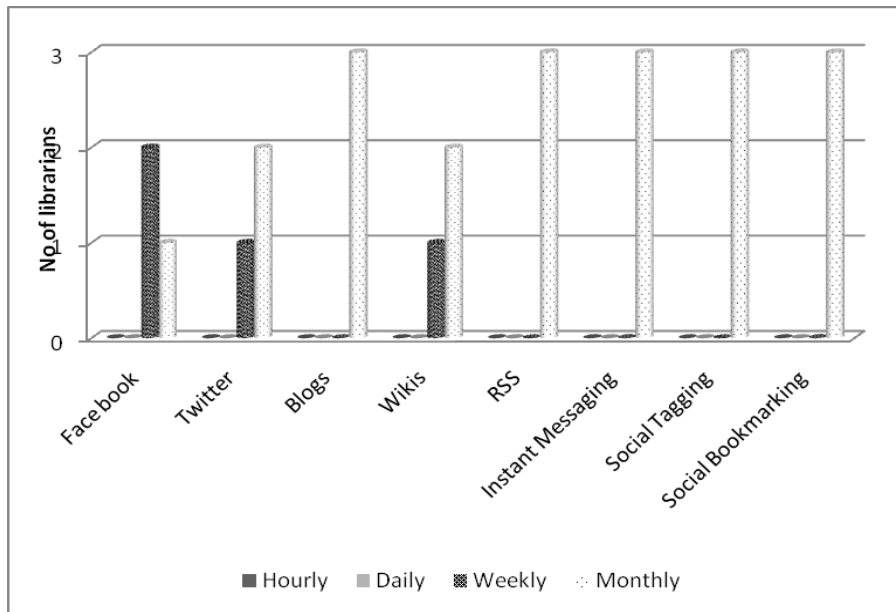
Figure 19: Frequency of librarians' personal usage of Web 2.0/3.0 technologies Site E

The data in Figure 19on the frequency of usage of Web 2.0/3.0 technologies indicates that most librarians used them monthly. No librarians used the Web 2.0/3.0 technologies hourly. Most librarians used the Web 2.0/3.0 technologies monthly. All the Web 2.0/3.0 technologies included in this study, that is Facebook, Twitter, Blogs, Wikis, RSS, IM, Social Tagging, and Social Bookmarking, were used at least monthly.

5.2.3 Librarians' Proficiency in the Usage of Web 2.0/3.0 Tools

This section presents data on the librarians' understanding of the Web 2.0/3.0 idea, and self-assessments of various Web 2.0/3.0 competencies and proficiency levels. It is part A of the librarians' questionnaire (see Appendix E).

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The librarians were asked to rate their proficiency in the usage of various Web 2.0/3.0 technologies. They gave their personal rating based on the following options: novice (often requires assistance), intermediate (occasionally requires assistance), and expert (does not require any assistance).
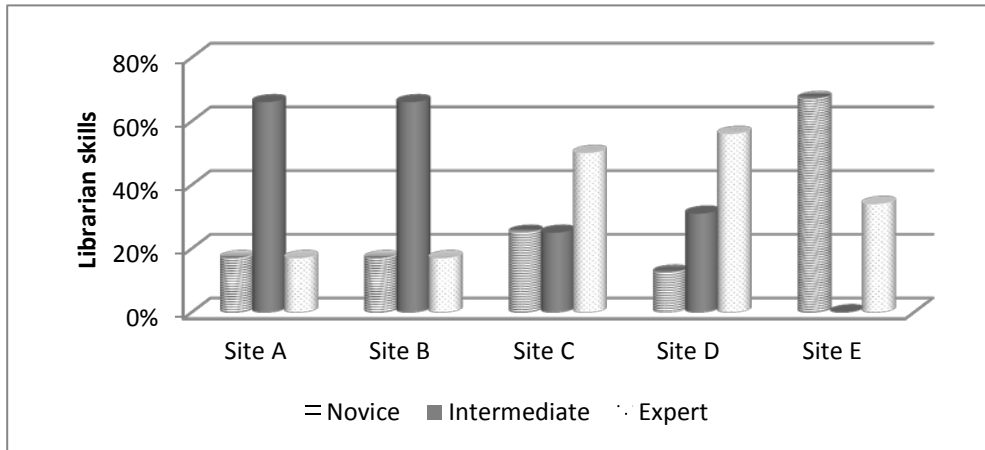
Figure 20: Librarians' level of skills in creating a blog on an SNS

The data in Figure 20 on the librarians' proficiency in creating a blog on a social networking service (SNS) indicates that Site D has the highest percentage of experts (56%), followed by Site C (50%). Overall ratings from all five of the research sites indicate that most librarians have intermediate skills in creating a blog on an SNS.
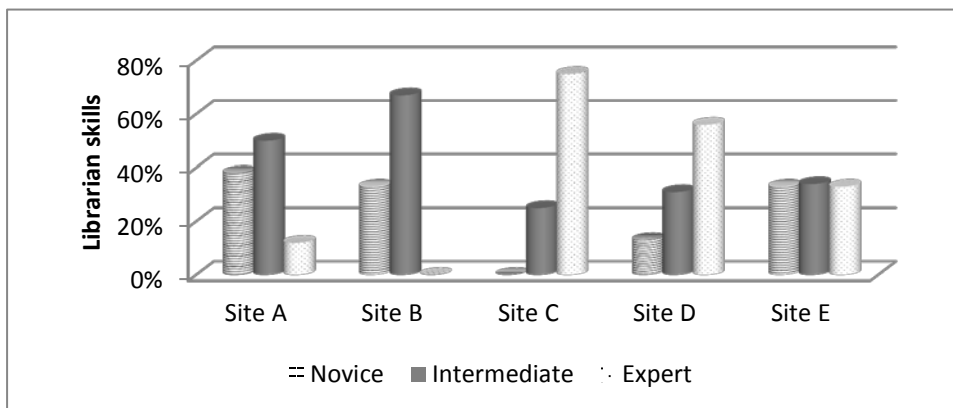
Figure 21: Librarians' level of skills in contributing to a blog on an SNS

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The data in Figure 21 on librarian's proficiency in contributing to a blog on an SNS indicates that Site C has the highest percentage of experts (75%), followed by Site D with 56 per cent. Overall ratings from all five of the research sites indicate that most librarians have intermediate skills in contributing to a blog on an SNS. Librarians from Sites A, B, D, and E indicated that they have novice skills.
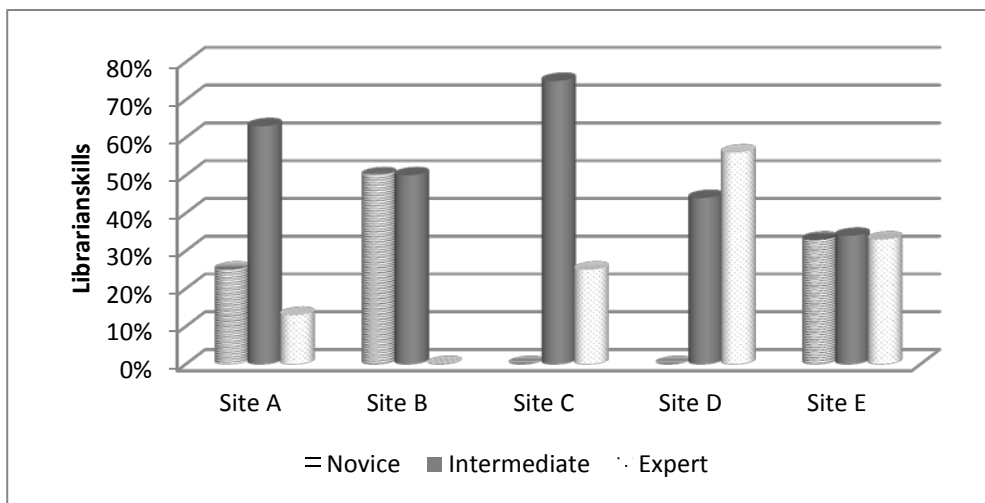
Figure 22: Librarians' level of skills in searching for other people's blogs

The data in Figure 22 on the librarians' proficiency in searching for other people's blogs indicates that Site D has the highest percentage of experts (56%). Overall ratings from all five of the research sites indicate that most librarians have intermediate skills in searching for other people's blogs. Site C has the highest percentage of librarians with intermediate skills (75%) in searching other people's blogs. Librarians from Sites A, B, and E indicate that they have novice skills.
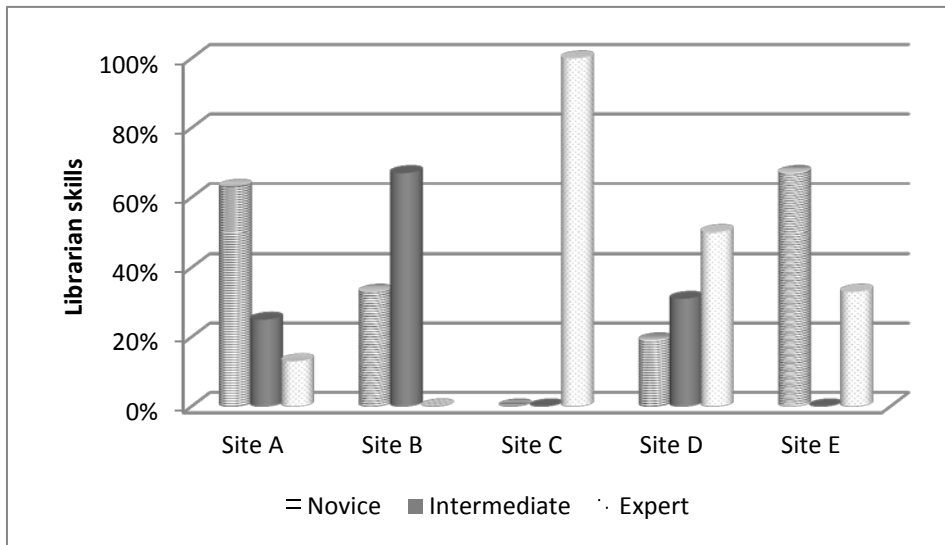
Figure 23: Librarians' level of skills in using IM tools

The data in Figure 23 on the librarians' proficiency in using IM tools indicates that Site C and Site D have the highest percentages of experts, namely 100 per cent and 50 per cent respectively. Overall ratings from four research sites, A, B, D, and E, indicate that most librarians have intermediate skills in using IM tools. Librarians from Sites A and E have high percentages of librarians with novice skills in using IM; 63 per cent and 67 per cent, respectively.
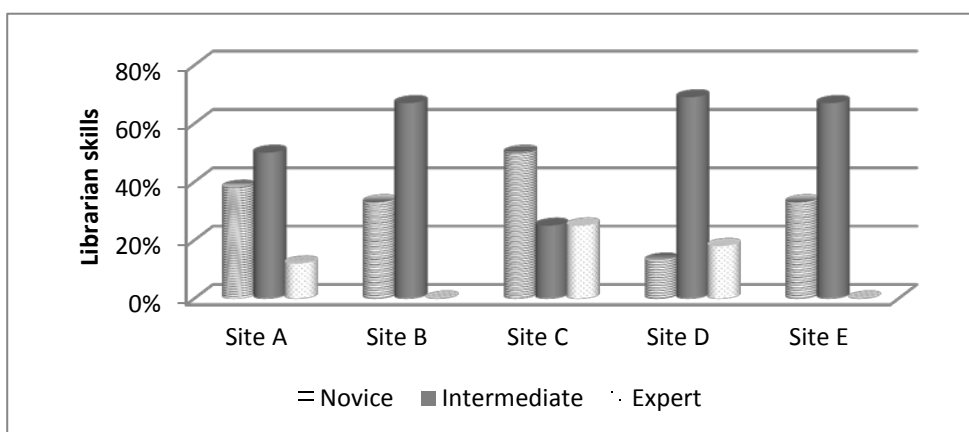
Figure 24: Librarians' level of skills in subscribing and unsubscribing to RSS feeds

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The data in Figure 24 on the librarians' proficiency in subscribing and unsubscribing to RSS feeds indicates that the majority of the librarians from all sites have intermediate skills in subscribing and unsubscribing to RSS feeds. From highest to lowest, the results are as follows: Site D, 69 per cent; Site B and Site E, 67 per cent each; and Site A, 50 per cent. Although Site C has the highest percentage of experts, they only constitute 25 per cent. Data from Sites B and E indicate that there are no librarians with expert skills in subscribing and unsubscribing to RSS feeds (0%).
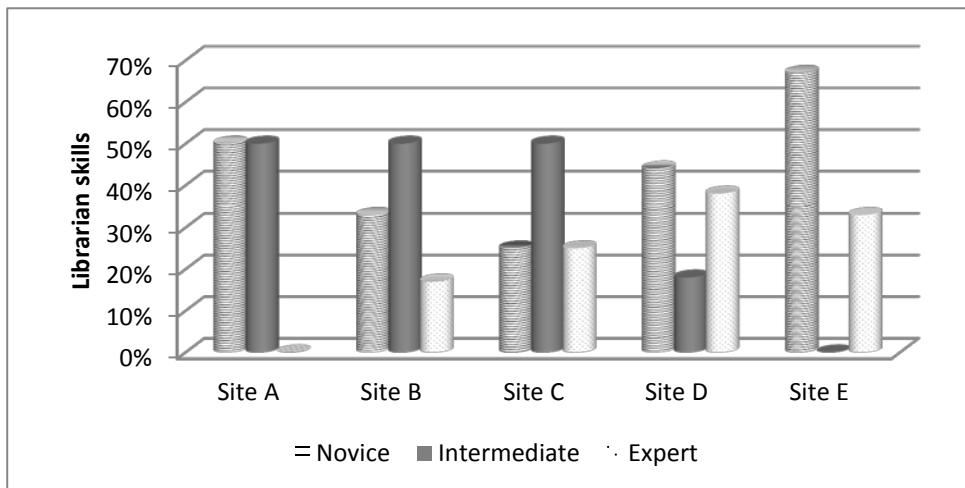
Figure 25: Librarians' level of skills in creating a wiki

The data in Figure 25 on the librarians' proficiency in creating a wiki indicates that Site D has the highest percentage of experts (38%). Overall ratings from three research sites, A, B, and C, indicate that most librarians (50%) have intermediate skills in creating a wiki. Site E has the highest percentage of librarians (65%) with novice skills in creating a wiki.
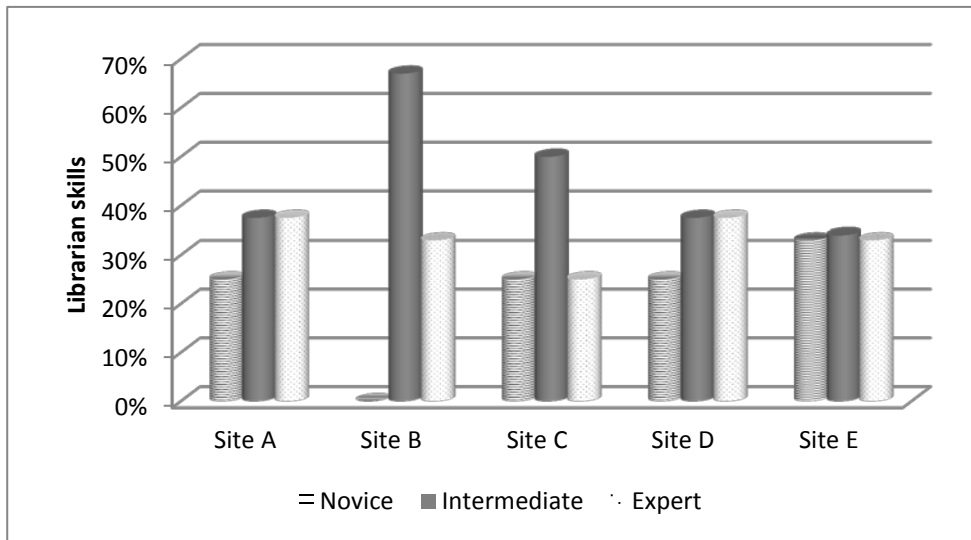
Figure 26: Librarians' level of skills in using social tagging

The data in Figure 26 on the librarians' proficiency in using social tagging indicates that Site A and Site D have the highest percentage of experts (37.5%). Overall ratings from all five of the research sites indicate that most librarians have intermediate skills in using social tagging. Site B has the highest percentage of librarians with intermediate skills (67%) in using social tagging. Librarians from Sites A, C, and D all have novice skills (25%).
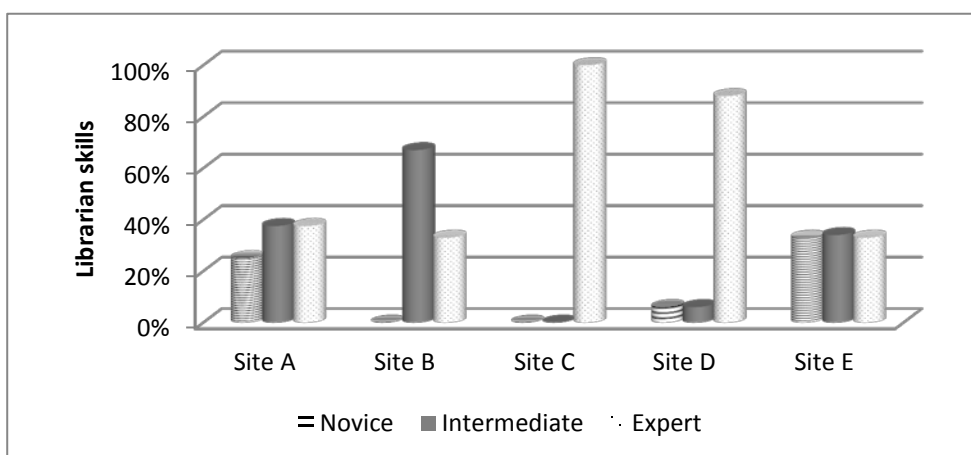
Figure 27: Librarians' level of skills in modifying the functionality of an SNS

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The data in Figure 27 on the librarians' proficiency levels in modifying the functionality of an SNS indicates that Site C and Site D have the highest percentage of experts, 100 per cent and 88 per cent respectively. Most (67%) librarians from Site B have intermediate skills in modifying the functionality of an SNS.
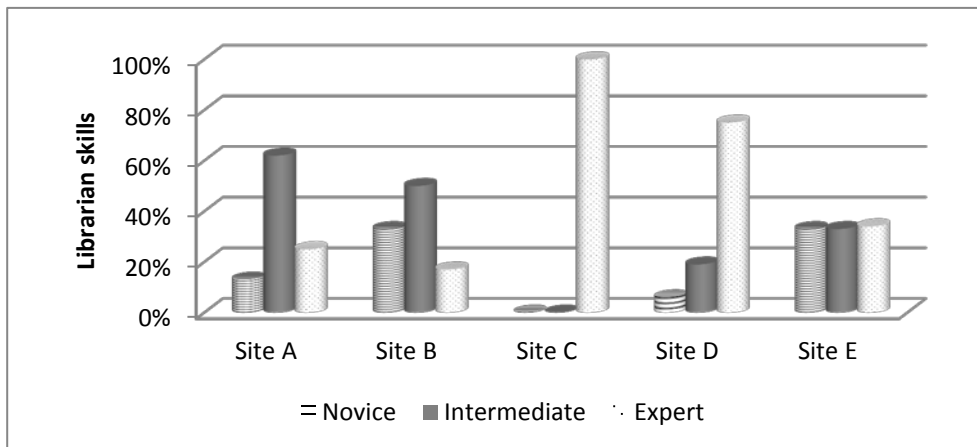
Figure 28: Librarians' level of skills in editing a profile on an SNS

The data in Figure 28 on the librarians' proficiency levels in editing a profile on an SNS indicates that Site C and Site D have the highest percentage of experts, 100 per cent and 75 per cent respectively. Most librarians from Site A and B have intermediate skills in editing a profile on a SNS, 62 per cent and 50 per cent respectively.

5.2.4 Librarians' Understanding of Web 2.0/3.0

The librarians were evaluated on their understanding of the term Web 2.0/3.0 by selecting the appropriate definitions from a range of alternatives. The following graph shows responses given by the librarians.

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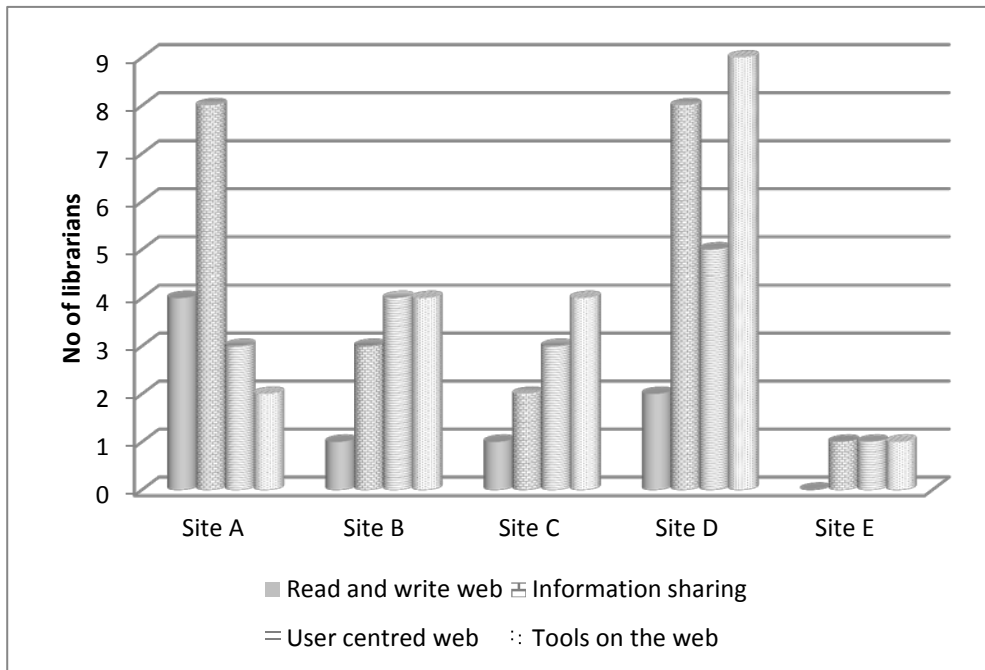
Figure 29: Librarians' understanding of the Web 2.0/3.0 concept

The data in Figure 29 on the librarians' understanding of Web 2.0/3.0.When asked to select the appropriate definitions indicates that all the librarians who took part in the study can define the concept in more than one way. This indicates that the librarians generally understand the concept of Web 2.0/3.0.

5.3 Evaluation of E-Service Quality in KLISC and GAELIC Libraries

The section presents data from part B of both the postgraduate student and librarian questionnaires. It is an evaluation of the E-SERVQUAL factors.

5.3.1 Evaluation of Factors in E-Services

E-SERVQUAL is a model for measuring customer perceptions of service quality (see section3.5 and 4.1.4).The idea, as in any gap analysis, is to get a good

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understanding of what customers want and to identify what they have at the moment. This study applies eight factors (see section 4.2.3, 4.2.4 and 4.2.5) which are labeled as follows:

- F_1: Customisation

- F_2: Ease of Use

- F_3: Reliability

- F_4: Responsiveness

- F_5: Assurance

- F_6: Empathy

- F_7: Communication

- F_8: User Satisfaction

The eight factors represent three key dimensions in e-service quality evaluation and are categorised as follows:

- System Quality: Factors 1 and 2 (see section 4.2.3)

- E-Service Quality: Factors 3, 4, 5, 6, and 7 (see section 4.2.4)

- Information Quality: Factor 8 (see section 4.2.5)

The methodology aims at determining the relative importance of each factor. To obtain results, an arithmetic mean was calculated for both the librarians' perspectives of perceived service, and the users' perspectives on perceived service. The arithmetic means obtained here indicate the overall individual rankings of the factors.

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The postgraduate students and the librarians from each research site ranked the quality of their library e-services using a Likert scale of 1 to 5 as follows:

- SD=Strongly Disagree   [1]
- D=Disagree   [2]
- N=Neutral   [3]
- A=Agree   [4]
- SA=Strongly Agree   [5]

The data is presented in eight tables. Each table contains data on each factor obtained from both the postgraduate students and the librarians from the five research sites.

For the purposes of understanding the data in the tables that follow, the abbreviation LIB will be used for librarian and PGS for postgraduate student.

5.3.1.1 Factor 1: Customisation

The library website informs and assists users in personalising their use of Web 2.0/3.0 sites such as Facebook and Twitter
The library website guides users in personalising the use of online databases
The library website provides online information services that are easy for users to contact me at any time by an online enquiry form
The library website utilises colours, backgrounds, fonts, icons, images, text size, and layout that are easy to view
The library website is well structured with menus that help users to understand how information/content is organised

Factor 1: Customisation

Attribute	Site A		Site B		Site C		Site D		Site E	
	PGS	LIB	PGS	LIB	PGS	LIB	PGS	LIB	PGS	LIB
1	3	4	5	5	3	3	3	3	3	3
2	4	4	4	5	3	4	4	4	4	4
3	3	4	4	4	3	4	4	4	3	4
4	4	4	4	4	4	4	4	4	4	4
5	4	4	4	4	4	4	4	4	4	3
Mean	**3.6**	**4**	**4.2**	**4.4**	**3.4**	**3.8**	**3.8**	**3.8**	**3.6**	**3.6**

Table 5: The data on Factor 1 Customisation of the library e-services

The data in Table 5 indicates that the highest ranking on Factor 1 is from Site B with both the postgraduate students and the librarians mean rankings as 4.2 and 4.4, respectively. Sites D and E received equal ranking from both the postgraduate students and the librarians as 3.8 and 3.6, respectively.

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5.3.1.2 Factor 2: Ease of Use

The library website provides users with pointers to useful resources										
The links on the library website are useful for discovering information sources										
The headings and labels on each page are used consistently										
The library provides computers with e-mail, Twitter, and Facebook links which improves ease of use										
It is easy to return to the library website after using other Web 2.0/3.0 sites										
Factor 2: Ease of Use										
Attribute	**Site A**		**Site B**		**Site C**		**Site D**		**Site E**	
	PGS	**LIB**	**PGS**	**LIB**	**PGS**	**LIB**	**PGS**	**LIB**	**PGS**	**LIB**
1	4	4	3	4	4	5	4	4	4	4
2	4	4	4	4	4	4	4	4	4	4
3	4	4	4	3	4	4	4	4	4	3
4	4	4	4	4	3	4	4	4	4	3
5	4	4	4	3	4	3	4	3	3	3
Mean	**4**	**4**	**3.8**	**3.6**	**3.8**	**4**	**4**	**3.8**	**3.8**	**3.4**

Table 6: The data on Factor 2 Ease of Use of the library e-services

The data in Table 6 indicates that the highest ranking for Factor 2 is from Site A with both the postgraduate students and the librarians mean ranking as 4 and 4, respectively. Site C received a ranking of 4 from the librarians, while Site D received a ranking of 4 from the postgraduate students.

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5.3.1.3 Factor 3: Reliability

The library staff make relevant information available for using Web 2.0/3.0 technologies such as Facebook and Twitter
The library staff respond to online reference questions promptly
The online catalogue is a comprehensive source of information about all materials in the library's electronic collections including links to SNSs
The reference library staff provide correct answers to reference questions
The library website is kept current by regular updating of its content

Factor 3: Reliability

Attribute	Site A		Site B		Site C		Site D		Site E	
	PGS	LIB	PGS	LIB	PGS	LIB	PGS	LIB	PGS	LIB
1	3	3	4	4	3	5	3	4	3	3
2	3	3	3	4	4	5	3	4	3	3
3	3	3	4	4	4	4	4	3	4	3
4	4	4	3	4	4	4	4	4	4	3
5	3	4	4	3	4	4	4	4	3	4
Mean	**3.2**	**3.4**	**3.6**	**3.8**	**3.8**	**4.4**	**3.6**	**3.8**	**3.4**	**3.2**

Table 7: The data on Factor 3 Reliability of the library e-services

The data in Table 7 indicates that the highest ranking for Factor 3 is from Site C with both the librarians and the postgraduate students mean ranking as 4.4 and 3.8, respectively. Sites B and D both received a ranking of 3.8 from the librarians.

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5.3.1.4 Factor 4: Responsiveness

The library staff communicate with users effectively through internet chat, text messaging, etc.
The library website periodically prompts users to provide feedback on service satisfaction
I use the library website to interact with library users
The library shares news and other information through Facebook and Twitter
The library staff delivers information on new journals and other resources promptly on Facebook or Twitter

Factor 4: Responsiveness

Attribute	Site A		Site B		Site C		Site D		Site E	
	PGS	LIB	PGS	LIB	PGS	LIB	PGS	LIB	PGS	LIB
1	3	4	2	4	4	5	3	4	3	3
2	3	4	3	3	3	5	3	4	3	3
3	3	4	2	3	3	5	3	3	3	3
4	3	4	2	3	3	4	4	4	4	3
5	3	4	2	3	3	4	3	4	3	3
Mean	3	4	2.2	3.2	3.2	4.6	3.2	3.8	3.2	3

Table 8: The data on Factor 4 Responsiveness of the library e-services

The data in Table 8 indicates that the highest ranking for Factor 4 is from Site C with the librarians' mean ranking as 4.6. Site B also received a ranking of 4 from the librarians. Site B received the lowest mean ranking of 2.2 from the postgraduate students on Factor 4: Responsiveness.

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5.3.1.5 Factor 5: Assurance

The library staff know how the equipment and Web 2.0/3.0 technologies work
The library staff initiate topical blogs that captivate and encourage me to participate
The library staff show their familiarity with the subject content through conversations on Facebook and Twitter
The library staff provide expert assistance when the users need it
The library staff show value for all users' information requests by responding to each inquiry

Factor 5: Assurance										
Attribute	Site A		Site B		Site C		Site D		Site E	
	PGS	LIB	PGS	LIB	PGS	LIB	PGS	LIB	PGS	LIB
1	3	4	4	4	4	4	4	4	3	3
2	3	3	2	4	3	3	3	3	3	3
3	3	3	2	3	3	4	3	4	3	3
4	4	4	4	4	4	4	4	4	4	4
5	4	4	4	4	4	4	4	3	4	4
Mean	3.4	3.6	3.2	3.8	3.6	3.8	3.6	3.6	3.4	3.4

Table 9: The data on Factor 5 Assurance in the library e-services

The data in Table 9 indicates that the highest ranking for Factor 5is from Sites B and C with the librarians' mean ranking as 3.8 and postgraduate students' as 3.2 and 3.6, respectively. Site B also received a ranking of 4 from the librarians. Site B received the lowest mean ranking of 3.2 from the postgraduate students on Assurance.

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5.3.1.6 Factor 6: Empathy

| The library provides online information services that interact with users in a courteous manner |
| The library provides online information services that interact with users in a respectful manner (e.g., maintaining privacy) |
| The library provides online information services that are easy to contact at any time by e-mail or SMS |
| The library staff use personalised user profiles to alert users on new resources for their research |
| The library staff always assure the users that their problems will be handled |

Factor 6: Empathy										
Attribute	**Site A**		**Site B**		**Site C**		**Site D**		**Site E**	
	PGS	**LIB**	**PGS**	**LIB**	**PGS**	**LIB**	**PGS**	**LIB**	**PGS**	**LIB**
1	4	4	4	4	4	4	4	4	4	4
2	4	4	4	4	4	5	4	3	4	4
3	3	4	2	3	4	5	4	3	4	4
4	3	3	2	3	3	3	3	4	3	4
5	4	4	4	4	4	5	3	4	4	4
Mean	**3.6**	**3.8**	**3.2**	**3.6**	**3.8**	**4.4**	**3.6**	**3.6**	**3.8**	**4**

Table 10: The data on Factor 6 Empathy in the library e-services

The data in Table 10 indicates that the highest ranking for Factor 6 is from Site C with the librarians' mean ranking as 4.4 and postgraduate students' as 3.8. Site E also received a mean ranking of 4 from the librarians and 3.8 from the postgraduate students. Site B received the lowest mean ranking of 3.2 from the postgraduate students on Empathy.

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5.3.1.7 Factor 7: Communication

The library staff conduct periodic user surveys on e-service
The library staff use email or SMS to remind the users due dates for borrowed resources
The library staff communicate with users effectively through SMS, Facebook, Twitter, or email
The upcoming library user training programs are communicated through email, SMS, Facebook and Twitter
The help functions on the library website are effective in resolving problems that users encounter in using library e-resources

Attribute	Site A		Site B		Site C		Site D		Site E	
	PGS	LIB	PGS	LIB	PGS	LIB	PGS	LIB	PGS	LIB
1	3	4	3	4	3	4	3	4	3	3
2	3	3	2	4	3	5	3	4	3	4
3	3	3	2	4	3	4	3	3	3	4
4	3	4	2	3	4	4	3	3	3	3
5	3	4	4	4	3	4	4	4	4	3
Mean	3	3.6	2.6	3.8	3.2	4.2	3.2	3.6	3.2	3.4

Table 11: The data on Factor 7 Communication in the library e-services

The data in Table 11 indicates that the highest ranking for Factor 7 is from Site C with the librarians' mean ranking as 4.2. Site B had the second highest mean ranking of 3.8 from the librarians. Site B received the lowest mean ranking of 2.6 from the postgraduate students on Communication.

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5.3.1.8 Factor 8: User Satisfaction

| Facebook and Twitter content is generated and shared on the library website |
| Library website users use chat sites such as IM to communicate |
| Library users access e-mail and share information, pictures, etc. from any computer in the library |
| Library website users use book marking tools to collect, organise, and share various types of information content that they discover while browsing the web |
| The library website provides resources that empower the user for personal development |

Factor 8: User Satisfaction

Attributes	Site A		Site B		Site C		Site D		Site E	
	PGS	LIB	PGS	LIB	PGS	LIB	PGS	LIB	PGS	LIB
1	3	4	2	3	3	3	3	3	3	3
2	3	3	2	3	4	4	3	3	3	3
3	3	4	2	4	4	4	3	4	3	3
4	3	4	4	3	3	3	3	3	3	4
5	3	5	4	4	4	4	4	4	4	4
Mean	3	4	2.8	3.4	3.6	3.6	3.2	3.4	3.2	3.4

Table 12: The data on Factor 8 User Satisfaction in the library e-services

The data in Table 12 indicates that the highest ranking for Factor 8 is from Site A with the librarians' mean ranking as 4. Site B received the lowest mean ranking as 2.8 from the postgraduate students on Communication.

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5.4 Gap Analysis

This section deals with the data on gap analysis (see section 3.4.1.2.1). The approach that is used here is based on the understanding of the customer-oriented philosophy (see section 3.3.1.1) and on developing services that satisfy those desires (3.3.3). The librarians are themselves customers of various internal e-services; for example, Web 2.0/3.0 tools and a variety of e-resources. The methodology applied here allows the researcher to assess customer satisfaction with the service delivery process necessary to provide quality e-services. The service delivery processes include system quality, service quality, and information quality. The gaps may range between +5 and -5 respectively. The formula used to calculate the gap between the Librarians Perspectives Mean (LPM) and Library Users Perspectives Mean (LUPM) is:

Gap Value =LPM-LUPM

The tables below provide a site-by-site analysis of gaps in the eight factors and have three main elements:

- the LPM value;
- the LUPM value; and
- the gap value.

5.4.1 Site A Gap Analysis

	LPM	LUPM	Gap
Site A			
Factor 1	4	3.6	0.4
Factor 2	4	4	0
Factor 3	3.4	3.2	0.2
Factor 4	3.8	3	0.8
Factor 5	3.6	3.4	0.2
Factor 6	3.8	3.6	0.2
Factor 7	4	3	1
Factor 8	4	3	1

Table 13: Gap analysis of Site A

The data in Table 13 from Site A indicates that the best performance in e-services offered is F_7: Communication and F_8: User Satisfaction, with an e-service gap of 1 respectively. Overall gap values from Site A indicate that there was no e-service factor with negative values.

5.4.2 Site B Gap Analysis

	Site B		
	LPM	**LUPM**	**Gap**
Factor 1	5	4.2	0.8
Factor 2	5	3.8	2.2
Factor 3	4.2	3.6	0.6
Factor 4	4.4	2.2	2.2
Factor 5	2.8	3.2	-1.4
Factor 6	3.8	3.2	0.6
Factor 7	4.6	2.6	2
Factor 8	3.8	2.8	1

Table 14: Gap analysis of Site B

The data in Table 14 from site B indicates that the following factors had gap values above 0. F_2: Ease of Use (2.2), F_4: Responsiveness (2.2), F_7: Communication (2), and F_8: User Satisfaction (1). Site B had a negative gap value on F_5: Assurance (-1.4).

5.4.3 Site C Gap Analysis

	Site C		
	LPM	**LUPM**	**Gap**
Factor 1	3.8	3.4	0.4
Factor 2	4	3.8	0.2
Factor 3	4.4	3.8	0.6
Factor 4	4.6	3.2	1.4
Factor 5	3.8	3.6	0.2
Factor 6	4.4	3.8	0.6
Factor 7	4.2	3.2	1
Factor 8	3.6	3.6	0

Table 15: Gap analysis of Site C

The data in Table 15 from Site C indicates that F_4: Responsiveness (1.4) and F_7: Communication (1) were the best performing factors with gap values above 1. Overall, there were no negative gap values from Site C.

5.4.4 Site D Gap Analysis

	Site D		
	LPM	**LUPM**	**Gap**
Factor 1	3.8	3.8	0
Factor 2	3.8	4	-0.2
Factor 3	3.8	3.6	0.2
Factor 4	3.8	3.2	0.6
Factor 5	3.5	3.6	-0.1
Factor 6	3.6	3.6	0
Factor 7	3.6	3.2	0.4
Factor 8	3.4	3.2	0.2

Table 16: Gap analysis of Site D

The data in Table 16 from Site D indicates that F1: Customisation and F_6: Empathy had a gap value of zero and was the best performing factors. There were negative gap values on F_2: Ease of Use (-0.2) and F_5: Assurance (-0.1).

5.4.5 Site E Gap Analysis

	Site E		
	LPM	**LUPM**	**Gap**
Factor 1	3.6	3.6	0
Factor 2	3.4	3.8	-0.4
Factor 3	3.2	3.4	-0.2
Factor 4	3	3.2	-0.2
Factor 5	3.4	3.4	0
Factor 6	4	3.8	0.2
Factor 7	3.4	3.2	0.2
Factor 8	3.4	3.2	0.2

Table 17: Gap analysis of Site E

The data in Table 17from Site E indicates that F_1: Customisation and F_5: Assurance had gap values of zero (0). There were negative gap values from Site E including F_2: Ease of Use (-0.4), F3: Reliability (-0.2) and F_4: Responsiveness (-0.2).

5.4.6 Overall Ranking of E-Service Quality Gaps

	1	2	3	4	5	6	7	8
‖ Site A	0.4	0	0.2	0.8	0.2	0.2	1	1
▦ Site B	0.8	2.2	0.6	2.2	-1.4	0.6	2	1
⊞ Site C	0.4	0.2	0.6	1.4	0.2	0.6	1	0
∴ Site D	0	-0.2	0.2	0.6	-0.1	0	0.4	0.2
■ Site E	0	-0.4	-0.2	-0.2	0	0.2	0.2	0.2
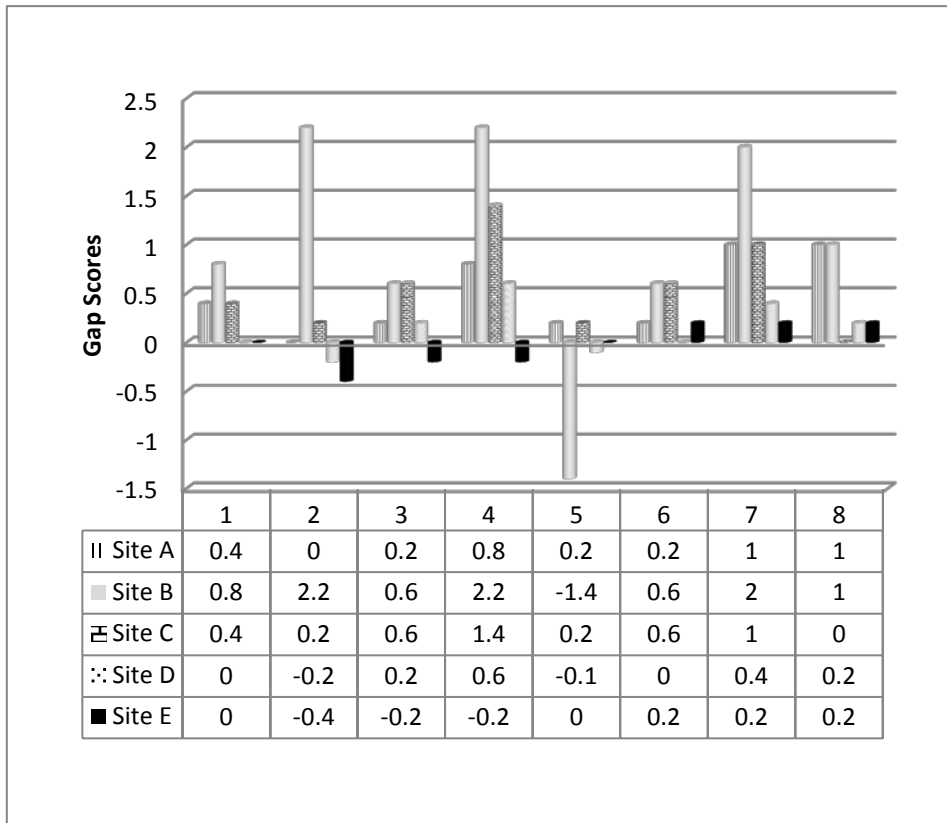
Figure 30: Overall ranking of e-service quality gaps

Figure 30 presents data on the overall ranking of e-service quality gaps. It provides a basis for individual sites to be evaluated on each of the eight e-service quality factors presented in the tables above. This graph presents an analysis of each factor in a matrix format. The factors listed below had a gap value ranging from 0 to 2.

- Site A: F_7: Communication (1) and F_8: User Satisfaction (1)

- Site B: F_2: Ease of Use (2.2), F_4: Responsiveness (2.2), F_7: Communication (2), and F_8: User Satisfaction (1)

- Site C: F_7: Communication (2), F_4: Responsiveness (1.4), and F_8: User Satisfaction (0)

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- Site D: F_1: Customisation (0) and F_6: Empathy (0)

- Site E: F_1: Customisation (0) and F_5: Assurance (0)

5.5 Critical Evaluation of Power Dynamics Underpinning User Satisfaction in Sites A-E

The data presented in this section emanates from the application of qualitative analysis software, namely *ATLAS.ti*. The data was obtained from part C of the questionnaires (see appendix E and F). 'Critical evaluation 'addresses the power, empowerment and disempowerment (power dynamics) that characterise and affect relations between librarians and library users in the everyday use of the Web 2.0/3.0 technologies in their academic libraries.

In several studies, e-service quality has been evaluated using variants of the following tools: LibQUAL, E-SERVQUAL, and SERVPERF. These and several other tools have been discussed in detail in chapter 3 (see section 3.4 and 3.5). The researcher developed a critical evaluation component as an addition to the theoretical framework for this study.

5.5.1 Power Dynamics

Both ontological and epistemological features of LIS can be used to understand power dynamics in this study. Ontology is a source of power for academic librarians

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through their traditional roles in bibliographic ontology, which provides the main concepts and properties for descriptions of bibliographic references on the Semantic Web. Epistemology is a more contested terrain as a result of the Web 2.0/3.0 tools, and their role in the growing empowerment of users (see section 2.4.2). Selection, organization, seeking, and communication of knowledge are all considered epistemological activities (see section 2.4.1).These activities were traditionally librarian work. However, the Web 2.0/3.0 technologies enable library users to participate in what librarians do, thereby challenging their traditional power roles. The ATLAS.ti helps to illustrate/demonstrate these power dynamics.

A description of the power dynamics used in this study is as follows:

1. *'Is associated with power'* defines a transitive type of relation. Transitive type of relation denotes that all corresponding parts are affected simultaneously and similarly. For example, when library users need to use authoritative information resources, they seek the services of a professional librarian. This represents the librarian's power status in which the librarian links the library users to authoritative information resources.

2. '*Shows empowerment'* defines asymmetrical type of relation. Symmetrical type of relation indicates equality in codes or families even with a reversal of positions. The librarian's skills, which are embedded in the professional services they offer to their users, explain this type of relation. For example,

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the library users will only be empowered if the librarians teach to them how to create 'search terms' in an information retrieval task.

3. *'Is a form of disempowerment'* defines an asymmetrical type of relation. This type of relation explains a condition in which one code or family is more superior to another. It expresses contradiction and bears a negative connotation. This may be reflected in a situation where two separate codes have negative effects on each other, yet both are useful in their specific contexts. For example, where librarian power appears to diminish as a result of the library user's ability to use Web 2.0/3.0 technologies to source information from colleagues using social media platforms.

The data for these power dynamics was coded and stored as Primary Documents (PDs) in the *ATLAS.ti* software. The PDs were used to generate the relations between themes (families) and their codes. For the purposes of this study, the default relations were renamed using the relations editor to illustrate the three semantic relations discussed earlier. The numeric values appearing alongside each code (e.g. user privacy 7-7) are automatically generated by the software. They denote the code density i.e. the number of links to other codes.

The three types of relations for the power dynamics will be presented using network views of five families (themes) namely:

- librarian power;

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- librarian empowerment;

- user empowerment;

- the role of Web 2.0/3.0 tools in user empowerment; and

- user disempowerment.

5.5.1.1 Librarian Power

Figure 31 is a network view of librarian power identifying 12 codes from the data and their respective relations.
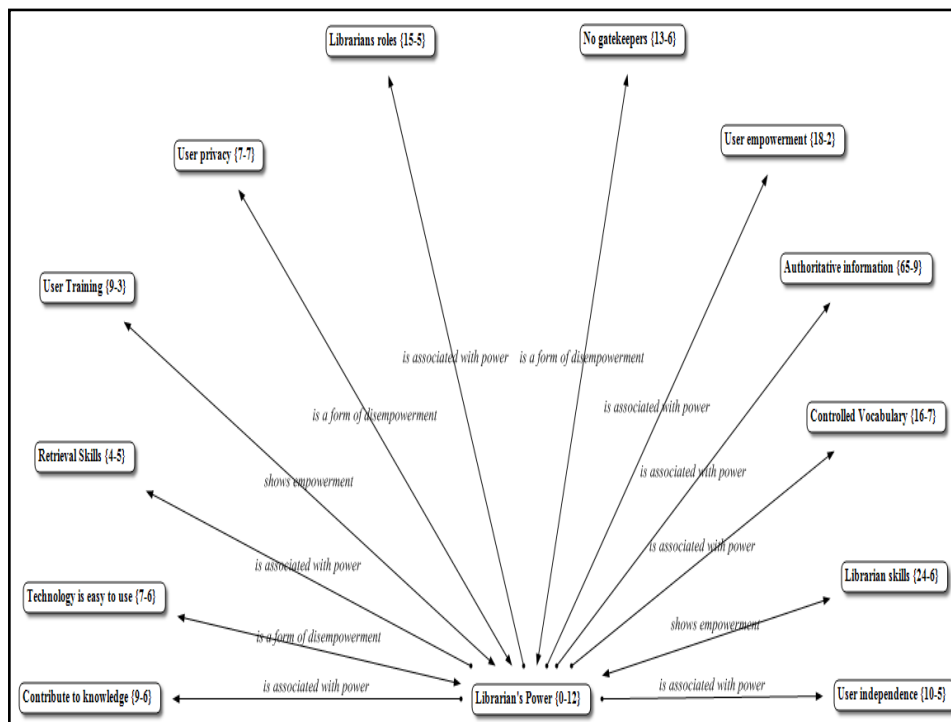
Figure 31: Librarian power

The codes with the 'is associated with power' transitive type of relation include:

- Authoritative information: 65 times in 9 PDs

- User independence: 10 times 5 PDs

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- Controlled vocabulary: 16 times in 7 PDs

- User empowerment: 18 times in 3 PDs

- Librarians' role: 15 times in 5 PDs

- Retrieval skills: 4 times in 4 PDs

The codes with 'shows empowerment' symmetrical type of relation include:

- Librarian skills: 24 times in 6 PDs

- User training: 9 times in 3 PDs

The codes with 'is a form of disempowerment' asymmetrical type of relation include:

- No gatekeepers: 13 times in 6 PDs

- Technology is easy to use: 7 times in 6 PDs

- User privacy: 7 times in 7 PDs

- Contribute to knowledge: 9 times in 6 PDs

5.5.1.2 Librarian Empowerment

Figure 32 is a network view of librarian empowerment. It identifies 8 codes and their respective relations.
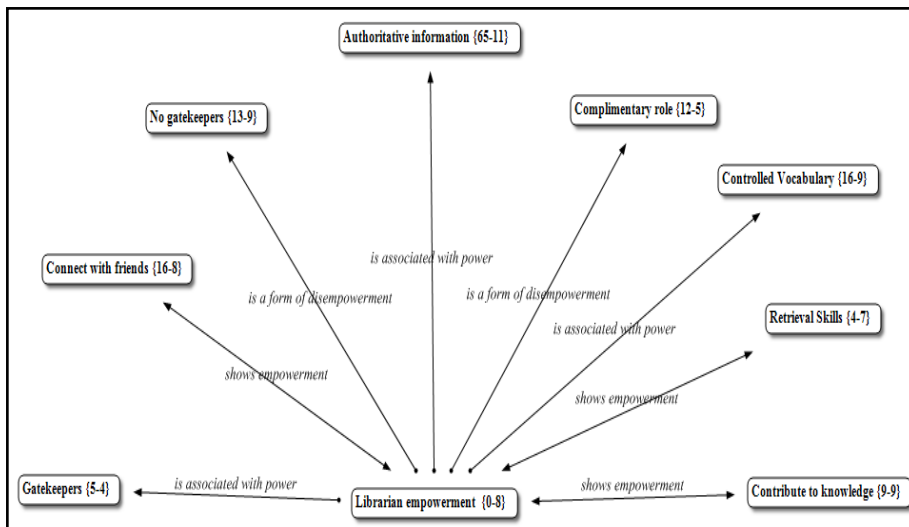
Figure 32: Librarian empowerment

The codes with the 'is associated with power' transitive type of relation include:

- Authoritative information: 65 times in 11 PDs

- Controlled vocabulary:16 times in 9 PDs

- Gatekeepers: 5 times in 4 PDs

The codes with 'shows empowerment' symmetrical type of relation include:

- Connect with friends: 16 times in 8 PDs

- Contribute to knowledge: 9 times in 9PDs

- Retrieval skills: 4 times in 4 PDs

The codes with 'is a form of disempowerment' asymmetrical type of relation include:

- Complementary role:12 times in 5 PDs

- No gatekeepers: 13 times in 9 PDs

5.5.1.3 User Empowerment

Figure 33 is a network view of user empowerment. It identifies 15 codes and their respective relations.
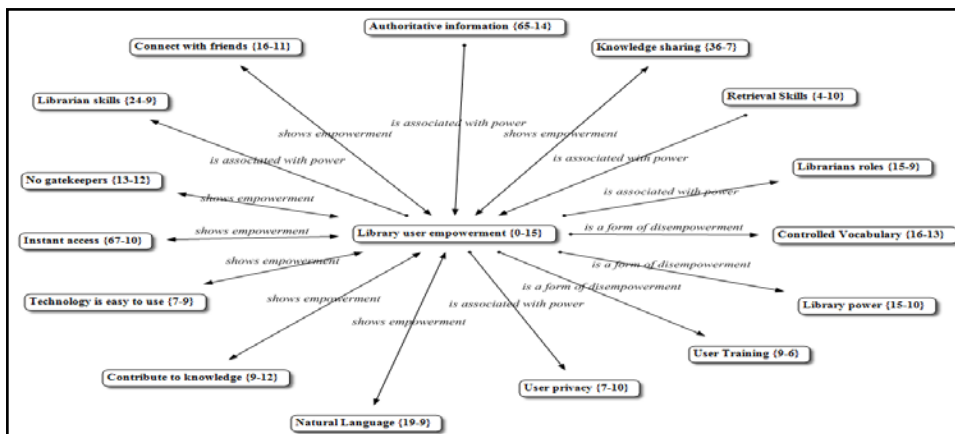
Figure 33: User empowerment

The codes with the 'is associated with power' transitive type of relation include:

- Authoritative information: 65 times in14 PDs

- Retrieval skills: 4 times in 4 PDs

- User privacy: 7 times in 7 PDs

- User training: 9 times in 3 PDs

- Librarian skills: 24 times in 6 PDs

- Librarians' roles: 15 times in 5 PDs

The codes with 'shows empowerment' symmetrical type of relation include:

- Instant access: 67 times in 7 PDs

- Knowledge sharing: 36 times 4 PDs

- Natural language use: 19 times in 6 PDs

- Connect with friends: 16 times in 5 PDs

- No gatekeepers: 13 times in 6 PDs

- Accessibility is easy: 10 times in 5 PDs

- Contribute to knowledge: 9 times in 6 PDs

- Technology is easy to use: 7 times in 6 PDs

The codes with 'is a form of disempowerment 'asymmetrical type of relation includes:

- Controlled vocabulary: 16 times in 7 PDs

- Library power: 15 times in 7 PDs

- User training: 9 times 3 in PDs

5.5.1.4 The Role of Web 2.0/3.0 in User Empowerment

Figure 34 is a network view of the role of Web 2.0/3.0 in user empowerment. It identifies 18 codes and their respective relations.

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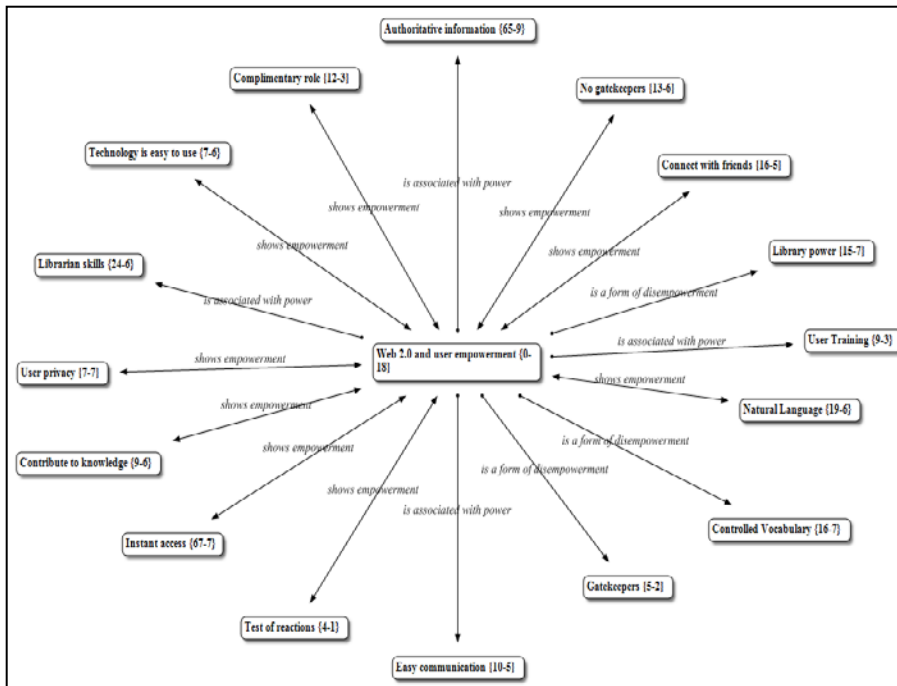
Figure 34: The role of Web 2.0/3.0 tools on user empowerment

The codes with the 'is associated with power' transitive type of relation include:

- Authoritative information: 69 times in 9 PDs

- Librarian skills: 24 times in 6 PDs

- Natural language: 19 times in 6 PDs

- User empowerment: 18 times in 3 PDs

- Easy communication: 10 times in 5PDs

- No gatekeepers:13 times in 6 PDs

- User empowerment: 18 times in 3PDs

The codes with 'shows empowerment' symmetrical type of relation include:

- Instant access: 35 times in 5 PDs

- Anytime access: 31 times in 7 PDs

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- Share knowledge: 27 times in 4 PDs

- Connect with friends: 16 times in 5 PDs

- Complementary roles played by librarians: 12 times in 3PDs

The codes with 'is a form of disempowerment' asymmetrical type of relation include:

- Controlled vocabulary: 16 times in 7 PDs

- Gatekeepers: 5 times in 2 PDs

5.5.1.5 User Disempowerment

Figure 35 is a network view of user disempowerment. It identifies 7 codes and their respective relations.
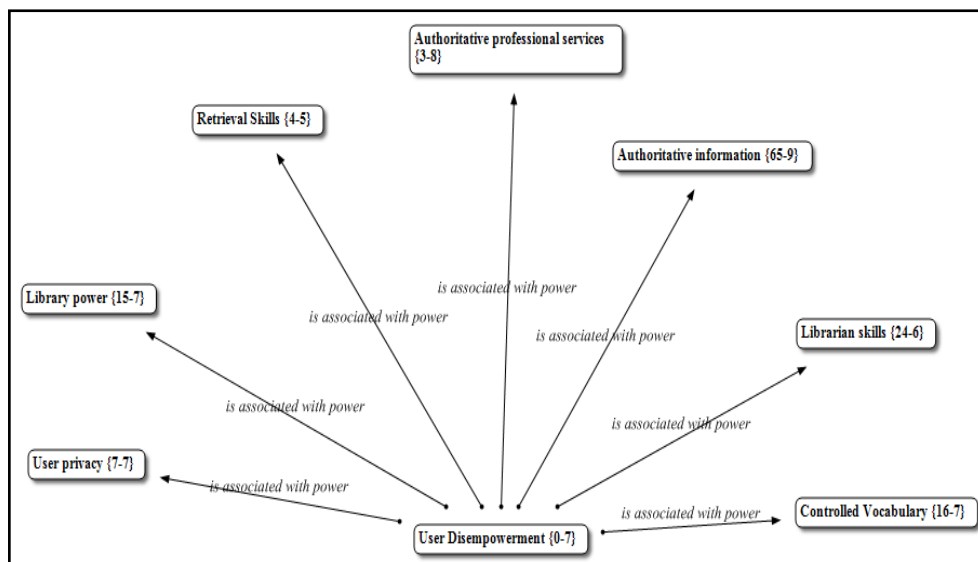
Figure 35: User disempowerment

The codes with the 'is associated with power' transitive type of relation include:

- Authoritative information:65 times in 9 PDs

- Librarian skills: 24 times in 6 PDs

- Controlled vocabulary:16 times in 7 PDs

- Library power: 15 times in 8 PDs

- User privacy: 7 times in 7 PDs

- Retrieval skills: 4 times in 5 PDs

- Authoritative professional services: 3 times in 9 PDs

5.6 Summary

This chapter presented data obtained from questionnaires, website content analysis, and site visits. The data from the five research sites in KLISC and GAELIC was presented as follows: first, the usage of Web 2.0/3.0 technologies by the postgraduate students; second, the librarians' usage of and proficiency levels in Web 2.0/3.0 technologies; third, an E-SERVQUAL evaluation of the Web 2.0/3.0 e-services to determine the best-ranked attributes in eight factors; fourth, a gap analysis of the eight E-SERVQUAL factors to determine the most significant factors in Web 2.0/3.0 e-services; and fifth, the critical evaluation of power dynamics underpinning user satisfaction in e-service. Chapter 6 will analyse and interpret the data presented in this chapter.

CHAPTER 6

DATA INTERPRETATION

As a rule, critical social theorists do not focus only on the negative realities and consequences of oppression but often target issues and strategies of human liberation from that oppression.—Joe Feagin and Herman Vera

6.0 Introduction

This chapter interprets the data presented and analysed in the previous chapter. It applies an integrative approach based on the mixed methods research design adapted for this study (see section 4.1).

The structure of the chapter is as follows:

- usage and awareness of Web 2.0/3.0 among postgraduate students in the KLISC and GAELIC academic libraries;

- librarian usage of and competencies in Web 2.0/3.0 technologies in the KLISC and GAELIC academic libraries;

- evaluation of e-service quality using the E-SERVQUAL gap analysis framework in KLISC and GAELIC academic libraries ; and

- critical evaluation of power dynamics underpinning user satisfaction in sites A-E.

Sections 6.1 and 6.2 interpreted the connections between the use by and competencies of postgraduate students and academic librarians with Web 2.0/3.0

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technologies on the one hand, and the ideas of social epistemology, ontology, and critical theory on the other (see sections 2.4.1, 2.4.2, and 2.4.5). As discussed already, the use of Facebook, Twitter, YouTube, Blogs, RSS feeds, Social bookmarking, and Social Tagging for knowledge generation and knowledge sharing in the Web 2.0/3.0 environment is changing traditional librarian-library user relations. The shifting power dynamics present both challenges and opportunities that library management and librarians should recognize.

6.1 Usage and Awareness of Web 2.0/3.0 Technologies among Postgraduate Students at KLISC and GAELIC Academic Libraries

This section interprets data on the usage and awareness of Web 2.0/3.0 technologies among the postgraduate students in sites A to E.

6.1.1 Site A

The study found that the frequency of visits to the library website by the postgraduate students at Site A was highest on a monthly basis. Generally, all the postgraduate students used Facebook, Twitter, and YouTube from both the library website and outside the library. Blogs and RSS feeds were used by about half the postgraduate students from the library website and from elsewhere. The data indicates that postgraduate students at Site A use the Web 2.0/3.0 tools regularly. The library training played an important role in raising awareness of Web 2.0/3.0 technologies on the library website. The special workshops, and the reference

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librarians, have not played an important role in raising awareness of Web 2.0/3.0 technologies. Inadequate opportunities to acquire information skills through forums such as special workshops, and the ineffectiveness of reference librarians, contributed to library user disempowerment.

6.1.2 Site B

The study found that the frequency of visits to the library website by the postgraduate students at Site B was highest on a weekly basis. Generally, all the postgraduate students used Facebook, Twitter, and YouTube from both the library website and outside the library. Blogs and RSS feeds were used by about half the postgraduate students from the library website and from elsewhere. Library training played an important role in raising awareness of the Web 2.0/3.0 tools on the library website. Library training represents a positive instance of librarian power. Librarian power, when properly mobilized, leads to user empowerment. Library training can therefore be a significant channel for librarians also to empower users.

6.1.3 Site C

The study found that the frequency of visits to the library website by the postgraduate students at Site C was highest on a daily basis. Generally, all the postgraduate students used Facebook, Twitter, and YouTube from both the library website and outside the library. Library training played an important role in creating awareness of the Web 2.0/3.0 tools on the library website. However, the reference librarian was not effective in creating awareness of Web 2.0/3.0 tools on the library

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website, which signifies librarian disempowerment. Expert skills in Web 2.0/3.0 technologies will empower reference librarians, making them 'visible' to their library users.

6.1.4 Site D

The study found that the frequency of visits to the library website by the postgraduate students at Site was highest on a weekly basis. The postgraduate students used Facebook and Twitter both from the library website and outside the library. Library training was not effective in creating awareness of the Web 2.0/3.0 tools. However, the reference librarian was effective in creating awareness of the Web 2.0/3.0 tools on the library website. The effectiveness of the reference librarian in creating awareness of the Web 2.0/3.0 tools on the library website at site D is an indication of both librarian empowerment and user empowerment.

6.1.5 Site E

The study found that the frequency of visits to the library website by the postgraduate students at Site E was highest on a daily basis. The postgraduate students used Facebook and Twitter from both the library website and outside the library. Library training played an important role in creating awareness of the Web 2.0/3.0 tools on the library website. The effectiveness of library training in creating awareness of Web 2.0/3.0 technologies on the library website is a source of library user empowerment.

6.1.6 Summary on Postgraduate Students Usage of Web 2.0/3.0 Technologies

This section highlighted user empowerment through various library user activities in academic libraries. The following inferences can be made in this regard:

- The postgraduate students are empowered through the three forums available for creating awareness of Web 2.0/3.0 technologies in their libraries.

- Library training is an effective way of raising awareness of the Web 2.0/3.0 technologies, and to empower the postgraduate students.

- The postgraduate students are aware of the existing Web 2.0/3.0 technologies, and use them just as much outside the library as on the library website.

- The postgraduate students acknowledge the role of the reference librarians. However, the reference librarians are not fully aware of their own power to instruct users about the Web 2.0/3.0 technologies through special workshops, user training, and direct interaction with the postgraduate students.

6.2 Librarians' Usage of and Competencies in Web 2.0/3.0 Technologies at KLISC and GAELIC Academic Libraries

This section interprets data on librarians' usage of and competencies in Web 2.0/3.0 technologies in Sites A to E.

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6.2.1 Site A

The frequency of librarians' personal usage of Facebook, Twitter, IM, Social bookmarking, and Social Tagging at Site A was highest on a daily basis. Blogs, Wikis and RSS were used frequently on a weekly basis by some librarians at Site A. The high daily frequency of usage in various Web 2.0/3.0 technologies, coupled with the indication of intermediate skills, demonstrates librarian empowerment.

6.2.2 Site B

The frequency of librarians' personal usage of Facebook, Twitter, and IM at Site B was highest on an hourly basis. However, Facebook, Twitter, blogs, RSS, and IM were also used frequently on a daily basis. Most librarians indicated that they had intermediate skills in the usage of the Web 2.0/3.0 technologies. These librarians could be further empowered through re-skilling to become experts in Web 2.0/3.0 technologies.

6.2.3 Site C

At Site C the frequency of librarians' personal usage of Facebook and Twitter was highest on a daily basis. However, Blogs, RSS, IM, Social Tagging, and Social Bookmarking were used frequently on a monthly basis. The intermediate and expert skills in Web 2.0/3.0 technologies both had the highest ranking among librarian competencies at Site C.

6.2.4 Site D

The frequency of librarians' personal usage of Facebook, Twitter, and IM at Site D was highest on a daily basis. The expert skills ranked highest among most librarians at Site D. The librarians at Site D are clearly empowered through expert skills in Web 2.0/3.0 technologies.

6.2.5 Site E

At Site E the frequency of librarians' personal usage of Blogs, Wikis, RSS, IM, Social Tagging, and Social Bookmarking was highest on a monthly basis. Novice skills ranked highest among the librarians at Site E. The low competency levels in Web 2.0/3.0 are an indication of librarian disempowerment.

6.2.6 Summary on Librarian Usage and Proficiency in Web 2.0/3.0 Technologies

This section highlighted librarian power/empowerment through usage of and competency levels in Web 2.0/3.0 technologies. The following inferences can be made in this regard:

- The librarians who participated in this study all have a good understanding of Web 2.0/3.0 technologies.
- Facebook, Twitter, and IM have the highest frequency for librarians' personal usage of the Web 2.0/3.0 technologies.

- The majority of the librarians in Sites A, B, C, and E possess intermediate skills in Web 2.0/3.0 technologies; however, many possess expert skills at Site D.

- Librarian empowerment can be inferred from individual proficiency levels. Expert skills represent librarian empowerment while novice skills indicate librarian disempowerment.

- Empowered librarians with expert skills can perform the professional tasks related to the use of the Web 2.0/3.0 technologies with ease and confidence.

- In general, librarians are not sufficiently aware of their power. When librarian power is properly mobilized, the library users will themselves be empowered resulting in greater user satisfaction with the e-service quality in their academic libraries.

6.3 E-SERVQUAL Gap Analysis Framework

The E-SERVQUAL gap analysis framework enabled a quantification of librarian perceptions and user perceptions in this study. Users construe quality as a subjective construct based on their previous experiences. A five-point scale (where 1 was lowest and 5 highest) was applied to the perceptions of the librarians and library users (see section 3.5.1). This section compares data on the perceptions of the librarians and library users. It applies gap analysis to determine the factors that are either satisfactory (meet user expectations) or unsatisfactory (require library management to work on their improvement).

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6.3.1 Factor 1: Customisation

Customisation includes five attributes that describes the adaptation of the Web 2.0/3.0 technologies such as Twitter, Facebook, and online services on the library website. The mean scores ranked by both postgraduate students and librarians ranged between 3.6 and 4.4 (see section 5.3.1.1). The overall ranking of the customisation of the library websites across all research sites is satisfactory.

The gap analysis on customisation affirms this with scores ranging from 0.8 to 0. There is no negative gap value in the scores on customisation. Customisation however, requires some improvements in order to give it higher gap analysis scores (+2). The librarians and library managers need to improve on the following attributes:

- The library website informs and assists users in personalising their use of Web 2.0/3.0 sites such as Facebook or Twitter.

- The library website guides users in personalising the use of online databases.

- The library website provides online information services that are easy for users to contact the librarian at any time by online enquiry form.

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6.3.2 Factor 2: Ease of Use

The ranking on ease of use focused on evaluating the degree to which the library users and the librarians believed that using their library websites would be free of effort. The overall mean rankings for the attributes were average and ranged from 3.8 to 4 for both postgraduate students and librarians in all the research sites (see section 5.3.1.2). The attributes that ranked highest include:

- The library website gives me pointers to useful resources.

- The links on the library website are useful for discovering information sources.

These attributes affirm the important function of a good library website, namely to provide the library users with pointers to useful resources, and to discover new information resources that will empower the library users.

The gap analysis scores ranged from 2.2 in Site B to -0.4 in Site E. Site B exceeded the customer expectations on ease of use. The other sites still need to improve on their library websites ease of use factor in order to achieve customer satisfaction. Although the libraries have provided computers with email, Twitter, and Facebook links, the postgraduate students indicated that it was not easy to return to the library page after using the Web 2.0/3.0 tools. Hence, attribute 5 was ranked lowest. There needs to be an improvement on the library website interfaces to allow a seamless transition to and from Web 2.0/3.0 tools, and to the library resources.

6.3.3 Factor 3: Reliability

The ranking on reliability focused on evaluating the levels of performance for the library website. The overall mean scores for both postgraduate students and librarians in all the research sites ranged from 3.2 to 4.4 (see section 5.3.1.3). The highest ranking attributes include:

- The library staff provides the correct answers to reference questions.

- The library website is kept current through regular updating of its content.

The attributes below did not rank highly.

- The library staff make relevant information available using Web 2.0/3.0 technologies such as Facebook and Twitter.

- The library staff responds to online reference questions promptly.

- The online catalogue is a comprehensive source of information about all materials in the library's electronic collections, including links to SNSs.

The librarians need to increase their personal usage of the Web 2.0/3.0 tools from their library websites. Timely communication about library materials or answering online reference questions using various Web 2.0/3.0 technologies will empower them (see section 5.2.3).

The gap analysis scores confirm the evaluation. There is a reliability gap in the e-service quality of the five research sites. The gap scores on reliability range from -0.2 to 0.6. There is no gap score above 0. This means that the reliability factor for the libraries' websites in all five of the research sites needs to be improved. There is no customer satisfaction on reliability.

6.3.4 Factor 4: Responsiveness

Responsiveness in e-service quality refers to prompt, timely and adequate response to customers queries, using Web 2.0/3.0 technologies such as IM, Twitter, Facebook, email, etc. The evaluation of the reliability factor indicates that the mean rankings for this factor are generally low in all the research sites. The mean rankings range from 2.2 to 4.6 (see section 5.3.1.4). Most of the mean rankings are below 3.5. All five attributes need to be improved to provide quality library website services.

The gap analysis scores confirm the above evaluation. The gap scores range from -1.4 to 0. There is no gap score above 0, meaning that the reliability factor of e-service is perceived as being low. This service gap indicates that the librarians should utilise the available Web 2.0/3.0 technologies to communicate promptly, timely, and adequately to their users' queries. This can be achieved through librarian empowerment with Web 2.0/3.0 competencies (see section 5.2.4). Utilising the Web 2.0/3.0 tools available on the library websites can be a cost-effective way through which librarians can promptly respond to their library users' queries with a personal touch.

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6.3.5 Factor 5: Assurance

The evaluation of assurance indicates that the mean rankings are relatively average. The mean rankings from 3.2 to 3.8 across all five of the research sites (see section 5.3.1.5). The ranking for this factor can be improved further through librarian empowerment. Empowered librarians will make contributions through the blogs and initiate conversations on their library Facebook and Twitter pages.

The gap analysis scores on assurance range from -0.1 to 0. There is no gap score above 1. This means that the assurance factor has a services quality gap, and that it needs to be improved for customer satisfaction.

6.3.6 Factor 6: Empathy

The evaluation of empathy indicates relatively average rankings in all five of the research sites. The mean rankings range from 3.2 to 4.4 (see section 5.3.1.6). Three individual attributes are ranked consistently average in all five sites. These attributes are:

- The library provides online information services that interact with me in a courteous manner.
- The library provides online information services that interact with me in a respectful manner (e.g., maintaining privacy).
- The library staff always assures the users that their problems will be handled.

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Empathy does not involve face-to-face interaction, for example, Facebook messages, e-mail, or IM communications, and when library websites give attention to individual users, it shows empathy. This can be demonstrated by addressing complaints in a friendly manner, or when librarians are consistently courteous to the library users. The attributes that need improvement are:

- The library staff can be easily contacted using email or SMS.

- The library staff use my personalised user profile to alert me of new resources for my research.

However, in order for these attributes to be improved, the librarians must first empower themselves by acquiring expert level competencies in Web 2.0/3.0 technologies. The gap scores range from 0.6 to 0. There is no gap score above 1, and there are no negative values. The empathy factor of e-service quality needs to be improved to meet the desired level of user satisfaction.

6.3.7 Factor 7: Communication

Any form of correspondence between the library and the library users can be defined as communication. The mean evaluation scores range from 2.6 to 4.2 (see section 5.3.1.7). Web 2.0/3.0 tools on the library website make communication easier, faster, and cheaper. The highest rated attribute in all the research sites is:

- The help functions on the library website are effective in resolving problems that users encounter in using library e-resources.

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The gap analysis scores on the communication factor range from 0.2 to 2. Three sites have gap scores ranging from 1 to 2. This means that the communication factor has been rated as satisfactory in the five research sites.

6.3.8 Factor 8: User satisfaction

User satisfaction in e-service evaluation can be experienced through websites that provide quality information that is accurate, current, timely, relevant, and easy to understand. The mean rankings on user satisfaction range from 2.8 to 4 in all five of the research sites (see section 5.3.1.8). These rankings are relatively average. The most consistently ranked individual attribute is:

- The library website provides resources that empower the user for personal development.

The gap analysis scores range between 0.2 and 1. Librarian and user empowerment can help improve the following attributes:

- Facebook and Twitter content is generated and shared on the library website.

- Library website users use chat sites such as IM to communicate.

- Library users access e-mail and share information, pictures, etc. from any computer in the library.

- Library website users use bookmarking tools to collect, organise, and share various types of information content they discover while browsing the web.

6.3.9 Summary of the E-SERVQUAL Gap Analysis Framework

Based on the data interpretation on the E-SERVQUAL gap analysis framework presented in this section, the inferences in Table 18 can be made about user satisfaction and user dissatisfaction with e-service quality.

	Site A	Site B	Site C	Site D	Site E
F_1: Customisation	X	X	X	✓	✓
F_2: Ease of Use	X	✓	X	X	X
F_3: Reliability	X	X	X	X	X
F_4: Responsiveness	X	✓	✓	X	X
F_5: Assurance	X	X	X	X	✓
F_6 : Empathy	X	X	X	✓	X
F_7: Communication	✓	✓	✓	X	X
F_8: User satisfaction	✓	✓	✓	X	X
✓Satisfactory e-service			X Unsatisfactory e-service		

Table 18: E-SERVQUAL gap analysis framework Site A-E

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The data in Table 18 shows the E-SERVQUAL gap analysis rankings in the five research sites. The lowest ranking factor is reliability with gap values less than 0 in all five of the research sites. It is the lowest ranking factor with customer dissatisfaction. **It is important to note that although user satisfaction is specified as Factor 8 in this framework, it is in fact implicit in all the factors as fundamental to e-service quality.** This means, in turn, that the power dynamics underpinning user satisfaction are also more significant in the evaluation of e-service quality.

6.4 Critical Evaluation Component

This section interprets the qualitative data about power dynamics underpinning user satisfaction outcomes in e-service quality. The quotations used in this section are derived from the critical evaluation component of the questionnaire (see appendix E and F). They are the qualitative data that was coded and presented in chapter 5 (see section 5.5). They are important in the discussion because they clarify the affect of Web 2.0/3.0 e-service (see section 7.3.1).

6.4.1 Librarian Power

Librarian power is evident in the manner in which librarians serve their user communities, specifically in the decisions or choices they make to offer or not offer certain services (see section 1.3.1). To understand librarian power, we cannot separate the library from the librarian. In democratic countries and as a symbol of

democracy, the library represents a public sphere where the library users (citizens) have democratic power vested in them. However, in a Web 2.0/3.0 environment this involves a new contestation of power between the librarian's relations of domination through controlled vocabulary, information retrieval skills, access to databases and other ontologies on the one hand, and the user's new skills of knowledge generation and sharing through Web tools on the other (see section 5.5.1.1).The following responses from librarians represent librarian power.

> "Librarians are in control of everything they update on these websites. I think we are in a position to remain in authority in the provision of information to our users".
>
> —Librarian

> "The very librarians are the ones providing information on these Web 2.0/3.0 tools. So library *[sic]* and librarians will always remain relevant".
>
> —Librarian

> "Librarians play a vital part in assisting students. I believe you could use technology, but when you get stuck who is going to help you? If there is access to librarians via these sites, that would be a different story. Considering the various cultures and the commonality of miscommunication, face to face assistance still is the best".
>
> —Postgraduate student

"Librarians offer good options and advice based on their experience".

<div align="right">—Postgraduate student</div>

"I think the librarians still have something to offer especially in helping you in focusing your search for specific information".

<div align="right">—Postgraduate student</div>

Responses from the librarians and the postgraduate students (library users) reveal the power dynamics in the following instances:

- **Controlled vocabulary and information retrieval skills.** During the information retrieval processes, library users without information skills often fail to retrieve the desired information even while using web technologies simply because they do not understand the use of 'search terms'. Librarian power refers to their ability to use search terms, apply truncation or use of synonyms in order to retrieve the desired and relevant information in the shortest time possible. As the information environment changes to an online world, users now participate in these processes on their own terms, and using their own terms.

"Although these technologies assist users with independent searchers, many of the commercial resources our library subscribes to are not connected and accessible via social media tools. The user skills still need the librarian i.e.

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with structuring of searching, Boolean searching, topic dissemination to structure searching, access to academic information relevant and current to the research topics, and the dependability of the sources".

<div align="right">—Librarian</div>

"Although the technologies provide the independence, there is always a need for a human touch or guidance".

<div align="right">—Postgraduate student</div>

- **Authoritative information and search skills**. Knowledge of information resources and retrieval skills gives the librarian power and authority over the library users. Many of the searches done by novice library users yield irrelevant information. This causes frustrations and 'library anxiety' among such library users. Librarian power in this instance resides in the knowledge of sources of authoritative information for the library users. The following quote by a librarian confirms the ability of librarians to find authoritative information.

"Librarians will always have a role to play, whether it is behind the scenes or traditional assistance they give to people. Even the Web 2.0/ 3.0 need people to search, collect, and compile information and knowledge to be made in a manner that can be accessed by users on these platforms".

<div align="right">—Librarian</div>

On the other hand, a postgraduate student expresses a different view about information skills and information sources.

> "With the ease of accessing information anywhere, there will be no need of libraries, thus perception of not using books or rather using mostly electronics like phones, laptops, desktops and iPads".

<div align="right">

—Postgraduate student

</div>

- **Contributing to knowledge**. Librarian power can be seen through their contribution to knowledge. Web 2.0/3.0 tools provide forums through which librarians can make contributions to knowledge as they practice their skills and serve their users. For example, through the use of blogs and wikis, skilled (expert) librarians can make significant contributions to knowledge within their library communities. These contributions to knowledge are integral to librarian power. The following responses are illustrative of the librarian power through contribution to knowledge using Web 2.0/3.0 technologies.

> "Librarians are the authors of the content that goes onto the Web 2.0 technology websites, much as they may be able to place all information for users on the sites, I still think they may be able to tell me something new to help me conduct my searches better".

<div align="right">

—Postgraduate student

</div>

"Librarians are the ones who will put that information in Web 2.0 tools. Just like many other things the library is also shifting to a virtual world. But humans and buildings are still needed for that virtual world to work perfectly".

—Librarian

6.4.2 Librarian Empowerment

Librarian empowerment is linked to librarian power. Librarian empowerment is a process of exercising librarian power for self-satisfaction and for satisfying users. Empowerment is fundamentally about gaining and exercising power (see sections 2.5.2 and 5.5.1.2). It means that people should be enabled to take control for themselves (Pruijt & Yerkes, 2013). It is central to the work of improving human lives and is thus an important paradigm today (Cattaneo & Chapman, 2010). Librarian empowerment entails that the librarians are able to make contributions to knowledge based on their know-how of the Web 2.0/3.0 tools. The following statements represent librarian empowerment.

"The technologies are helping the librarians to provide better services and be better connected to the clients. It's fine if the users can help themselves, because you want an educated whole person sent out to the workforce".

—Librarian

"As a library professional it gives me pleasure to comment and participate on issues that have an impact on my profession".

—Librarian

The following responses from the postgraduate students affirm the empowerment of librarians through their know-how.

"Librarians will always be needed, they make access to information and support just much easier".

—Postgraduate student

"These tools cannot provide every *[sic]*information but a librarian through interaction can do so".

—Postgraduate student

The data indicated that authoritative information services, anytime access, and easy communication (see sections 5.5.1.2 and 5.5.1.3) are some examples of codes related to librarian empowerment, and are illustrated as follows:

- **Authoritative information services** are associated with librarian empowerment fundamentally because it is about gaining power. The empowered librarian is able to take control of his/her personal information needs and, as a professional, guide the library users towards authoritative information sources. For example, when postgraduate students request

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specific information regarding their research topics, the librarians should possess adequate knowledge of available authoritative information resources to offer authoritative information services. The following responses are illustrative of librarian empowerment.

"I think librarians still play an important role in helping students to find new ways of gathering data and providing tips on how to ensure that you get the right content for your research work. I just find them quite helpful in that regard because you also get a personalized assistance *[sic]* and they often guide you on a step by step basis".

—Postgraduate student

"Librarians have very special tasks to provide credible information to its patrons. Letting users know about these sources with the use of these tools is very important to ensure that they know about them".

—Librarian

"The library is definitely not the only provider of relevant authoritative information, but librarians can help in giving guidance to users in determining the value of information found".

—Librarian

"The librarian still stands vital in guiding the process and for consultation".

—Librarian

"Librarians are trained to provide information. The authenticity of other sources can be questionable".

—Postgraduate student

- **Anytime access** is associated with librarian empowerment through the availability of the library website and Web 2.0/3.0 tools. The library websites offer24 hour access to information resources such as e-databases, e-books, and even some reference services. This is a form of librarian empowerment because it allows the librarians to satisfy promptly the information needs of their users.

"The technologies are helping the librarians to provide better services and be better connected to the clients. It's fine if the users can help themselves, because you want an educated whole person send out to the workforce".

—Librarian

"The core function of Librarians that makes them authoritative custodians of information is to acquire materials, process them, store them to disseminate. However, these technologies perform all these functions and beyond at a very faster rate".

—Postgraduate student

- **Easy communication** is associated with librarian empowerment through the use of the Web 2.0/3.0 technologies. The essence of communication, according to Buschman (2003), is to construct a society around principles of

reason, arrived at through communication (see section 1.1.3). This can be used to describe the role of Web 2.0/3.0 technologies in academic libraries as facilitating a public sphere. From the interpretation of data on e-service quality, communications factor ranked low, despite the availability of Web 2.0/3.0 technologies that can be used as a means of faster and cheaper communication with the library users (see section 6.4.7). The following responses illustrate the widespread use of Web 2.0/3.0 technologies among the librarians and their library users.

"…target for academic libraries are students who are heavy users of social media. For academic libraries to reach majority of their clients they need to embrace use of social media as a communication tool" *[sic]*.

—Librarian

"Academic libraries should use any possible media to communicate with their users including the social media".

—Librarian

"Social media can as well pass academic information. It can be used by a library to take its services where the young generation is, - this is because their information seeking behavior is changing".

—Librarian

6.4.3 Library User Empowerment

Library user empowerment can be increased by librarian power and Web 2.0/3.0 technologies. Librarian power refers to the types of information resources, services, and training made available to library users (see section 5.5.1.2). User empowerment can be achieved when librarian power is applied. However, Web 2.0/3.0 tools in academic libraries can also empower library users without the intervention of librarians. Library user empowerment therefore means that the library users are able to access and share information using Web 2.0/3.0 tools with or without the assistance of librarians. The following responses represent library user empowerment.

> "Training sessions offered to them and the free nature of the internet provides the ability to search the web. The usability and user friendliness of these technologies enables users to search".

—Librarian

> "Serious researchers realise the value that a trained information specialist can add to the research process. They train researchers (users) in the use of other specialised databases".

—Librarian

The data indicated that instant access to information resources, user independence, knowledge sharing, and technology is easy to use, and connecting with friends are some examples of codes related to user empowerment. They are illustrated as follows:

- **Instant access to information resources** connects with user empowerment through Web2.0/3.0 technologies. The following responses indicate the perspectives of the postgraduate students on instant access to information resources.

> "Increased efficiency in terms of speed and accuracy".
>
> —Postgraduate student

> "This is because you can use net *[sic]* anywhere unlike going to the libraries; you can access the searches with ease".
>
> —Postgraduate student

> "This is because these technologies can be updated with ease, so it has the current information, unlike the libraries".
>
> —Postgraduate student

- **User independence** is associated with user empowerment (see section 5.5.1.3). User independence can imply that users are free to express their

views. This is an important aspect of democracy in academic libraries and freedom of access to information (see section 1.1.2).User independence means that library users participate in a virtual public sphere. The idea of a public sphere was developed by Habermas (1987) and applied in LIS by Buschman (2003), and more recently by Feenberg (2009) as an expression of the virtual sphere (see section1.1.3). When users contribute to knowledge using Web 2.0/3.0 tools in their libraries, it is an illustration of the use of the library as a public sphere. The library users recognize user independence as a significant aspect of Web 2.0/3.0 tools. The following responses illustrate postgraduate students' feelings when they contribute and share knowledge using the Web 2.0/3.0 technologies.

"It feels good to know that my contributions help".

—Postgraduate student

"I like making positive contributions".

—Postgraduate student

"I want to know what others think about the topic".

—Postgraduate student

"I get a wide range of feedback on issues".

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"It's a way of making your opinion a part of the bigger conversations that society is having about that particular topic".

"My contribution could be of help to others who access it, yet I would not reach them without social media".

- **On knowledge sharing**, the postgraduate students stated the following:

  "I get solutions to otherwise challenging problems".

  "It makes me feel useful as a contributor to something worthwhile".

  "Increase in knowledge by seeing other people's views on issues to take a well-informed position".

"I feel good, especially when the whole world sees my views on issues at stake".

<div align="right">—Postgraduate student</div>

"Sometimes it is a great way to make an opinion public. It is pleasing to see others response *[sic]* as well".

<div align="right">—Postgraduate student</div>

"The fact that I can contribute to knowledge building".

<div align="right">—Postgraduate student</div>

"I become visible".

<div align="right">—Postgraduate student</div>

- **Instant access** is associated with library user empowerment through the e-services and the Web 2.0/3.0 technologies. The immediate availability of e-resources in academic libraries is a form of empowerment to the library users. Library users are able to explore and find information without the constraints of library opening hours. Through blogs and wikis the postgraduate students indicated that they are able to post questions and receive responses almost instantly. The following responses from the postgraduate students illustrate library user empowerment through instant access on Web 2.0/3.0 technologies.

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"These technologies are very versatile and can be used for all stages of research right from data collection to dissemination of results".

—Postgraduate student

"These technologies are agents that carries the library virtually to everywhere on the planet. With the adoption of these technologies one does not need to physically visit the library before having information in order to take important decisions. The only thing you need is to have your password or IP address to have full access to material of any online library".

—Postgraduate student

"Faster and timely response from the web".

—Postgraduate student

"Web can be accessed anytime unlike librarians".

—Postgraduate student

"No deadlines are required when using the web".

—Postgraduate student

- **Technology is easy to use**. Library users are able to use the Web 2.0/3.0 technologies to access information without assistance from the librarians. The data on the postgraduate students' use of Web 2.0/3.0 technologies outside their libraries (see section 5.2.2) indicates that the majority (100%)

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of the students from all five of the research sites use Facebook outside their library. However, specialised library technology may require specialised training for most library users. The following responses confirm that the Web 2.0/3.0 technologies are easy to use and contribute to library user empowerment.

"The technologies are user friendly".

<div align="right">—Postgraduate student</div>

"Anyone with computer knowledge can access information".

<div align="right">—Postgraduate student</div>

"…social media has proven to be successful on various levels and can be very beneficial to academic libraries. The problem however, is to find the right media for the different audiences and investigating what these audiences would like on the different platforms".

<div align="right">—Librarian</div>

- **Connecting with friends** expresses the theory of communicative action and can be realised through a virtual public sphere (see section 1.1.3). A virtual public sphere denotes a form of democracy; a platform through which library users can meet and share ideas. It denotes user empowerment. The popularity of Web 2.0/3.0 technologies such as the Facebook and Twitter among the library users signifies the progression of academic libraries towards

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reclaiming the public sphere. The following responses from both postgraduate students and librarians confirm the significance of connecting with friends using Web 2.0/3.0 technologies.

"I enjoy socialising with others".

—Postgraduate student

"The interaction stimulates debate and some form of discussion and can be used to structure academic arguments".

—Postgraduate student

"If you want to reach your users, you have to meet them where they are mostly active, i.e. the social media, which is a very power tool *[sic]* and excellent communication vessel".

—Librarian

"It can be used on a limited basis, as a link to publications that focus on in-depth analysis".

—Librarian

6.4.4 User Disempowerment

Disempowerment refers to a situation where an individual experiences a reduced amount of control over a situation. In Heidegger's discussion on the purpose of

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questioning technology (1964), he states that being free does not imply the absence of technology, but it is through a better understanding of its essence and meaning(see section 2.3.2). Disempowerment of library users is evident through issues of user privacy arising from the library technologies themselves. It is also evident through the librarian power involving direct control of authoritative professional services such as user training. The data indicated that user privacy, librarian skills, and librarian power are related to user disempowerment (see section 5.5.1.5).

- **User privacy** is associated with user disempowerment. Many of the Web 2.0/3.0 technologies users may not be aware of privacy related issues in a social media environment. For example, if library users use the library Facebook to discuss sensitive issues concerning their institutions, their contributions will be viewed by the librarians and library users. This can lead to investigations of such students' conduct outside the institution. The following responses from the postgraduate students confirm their concerns about privacy and the use of Web 2.0/3.0 technologies in their libraries.

"The possibility of what I say to be taken out of context".

—Postgraduate student

"I do not feel the need to advertise my every online move. I do not update my status on Facebook".

—Postgraduate student

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"My only concern is the security issues. One can never be sure that he/she is safe, so keeping identity anonymous for me it's important".

—Postgraduate student

"My personal opinions might be used in the incorrect context that I was not intending to display or express".

—Postgraduate student

"Afraid of information getting to the wrong people - like criminals".

—Postgraduate student

- **Librarian power** is associated with user disempowerment. In this case, user disempowerment can result from a kind of control over people's minds through values, ethical beliefs, emotions, aesthetics, ideologies, or pride. Disempowerment can refer to situations in which there exists manipulation of the library users' perception of library values and philosophies. For example, all academic libraries have strict codes of conduct regarding various services, including e-services. These codes define a type of library power. The following responses show how library power may disempower users unless librarians are available to explain library policies and codes to users.

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"There are sites that need registration where the library assists as it is registered and a user can then access the sites with the help of the library".

—Postgraduate student

"We will always need human interaction no matter what. These technologies cannot replace librarians".

—Postgraduate student

"The role of the librarian is to facilitate lifelong learning. Web 2.0/3.0 makes it possible to achieve that end without breaking the bank".

—Librarian

6.5 Summary

This chapter presented an analysis and interpretation of the data. It is clear that the critical evaluation component can benefit academic libraries in KLISC and GAELIC. The data from the E-SERVQUAL gap analysis framework and critical evaluation component identifies both the non-human and human factors affecting e-service quality. The E-SERVQUAL gap analysis identified the system related factors affecting e-service quality. However, the critical evaluation component reveals in great details the power dynamics underpinning user satisfaction. Chapter 7 uses the interpreted data to manage the power dynamics and to propose a critical evaluation strategy to improve user satisfaction in the Web 2.0/3.0 oriented KLISC and GAELIC academic libraries.

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CHAPTER 7

IMPLEMENTING A CRITICAL EVALUATION STRATEGY

A strategy is something you can touch; you can motivate people with. You can energise people around the message.—Jack Welch

7.0 Introduction

The previous chapter presented an interpretation of the data. The data from the library users and the librarians conveyed their perceptions of their power, empowerment, and disempowerment related to the use of the Web2.0/3.0 technologies. In the past, academic library management has been criticised for the lack of theoretical and philosophical grounds for making changes to library service delivery processes (Buschman, 2003).This study instead applies concepts of critical theory to e-service quality evaluation with a view to understanding the power dynamics in a Web 2.0/3.0 environment.

The power dynamics provide in-depth information on the effects of the Web 2.0/3.0 technologies on user satisfaction and dissatisfaction with e-service quality. User satisfaction is a reflection of service quality and academic librarians need to ensure that their services meet user satisfaction to the highest degree possible. These power

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dynamics provide information on the causes of user satisfaction or dissatisfaction with the Web 2.0/3.0 e-service quality in academic libraries.

The layout of the chapter is as follows:

- the need to adapt the E-SERVQUAL gap analysis framework;

- power dynamics within the Web 2.0/3.0 e-services in KLISC and GAELIC academic libraries;

- a critical evaluation strategy model for KLISC and GAELIC academic libraries;

- the benefits and challenges of implementing the model; and

- Critical Success Factors (CSFs) for implementing the critical evaluation model in KLISC and GAELIC academic libraries.

7.1 The Need to Adapt the E-SERVQUAL Gap Analysis Framework

This study adapted the E-SERVQUAL gap analysis framework that has been used in e-service quality evaluations in libraries and other service industries (see section 3.4.1). E-SERVQUAL was used to evaluate the e-service quality but the data did not provide any meaningful insights on the shifting dynamics of power. E-SERVQUAL provided data that indicated the mean scores of each attribute, and subsequently each factor. At that stage of analysis, the data did not provide an in-depth understanding of why the factors were perceived as satisfactory or unsatisfactory (see sections 5.3 and 6.4). The gap analysis provided in-depth results based on the

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perceptions-only approach of e-service quality on each of the eight factors and their attributes. The gaps identified in each e-service factor, and their attributes, provide the in-depth information on exactly what needs to be improved. Although the gap analysis was able to present an in-depth analysis of the data, it did not provide information on the why and wherefore of user satisfaction or dissatisfaction and their connections to the dynamics of power.

A critical evaluation component had been added to the E-SERVQUAL gap analysis framework to probe the power dynamics underpinning user satisfaction and dissatisfaction. It investigated the power relations between the librarians, and the library users in a Web 2.0/3.0 environment. It provided information on causes of user satisfaction and dissatisfaction with e-service quality. For example, the Web 2.0/3.0 technologies are identified as alternative sources of information available to the library users. They are transformative and liberationist (see section 2.5.3), and are popular among the library users for knowledge sharing practices which represent forms of user empowerment. These technologies can also be perceived as a site of power struggles in academic libraries.

7.2 Power Dynamics and Web 2.0/3.0 E-Services

Power dynamics in a Web 2.0/3.0 environment have distinctive effects on the e-service delivery processes in academic libraries, and are evident in several ways. The literature indicated expressions of fear of the demise of librarianship as a

profession when Web 2.0/3.0 technologies are allowed to dominate certain library service delivery processes (see section 2.4). The data in this study however assuages this fear and reaffirms the value of the academic librarians in a Web 2.0/3.0 environment (see section 6.4).

The data indicated that although the majority of the librarians used Web 2.0/3.0 technologies daily (see section 5.2.3), they were not sufficiently aware of their librarian power. Librarian power is also a form of professional power. Examples of librarian power in this study include bibliographic control, their ability to use controlled vocabulary, information retrieval skills, access to authoritative information, and offering user training programs (see section 6.4.1). Librarians need to be aware of this power and use it to empower themselves and their library users.

The data indicated that both the librarians and library users are aware of the importance of empowerment (see sections 6.4.2 and 6.4.3). Most librarians acknowledge that empowerment is important to them because it provides them with relevant knowledge and skills to work in a professional and efficient manner. Empowered librarians and library users are able to generate information and share knowledge with other library users using Web 2.0/3.0 technologies. Knowledge sharing is a significant aspect of epistemological and ontological approaches in LIS (see sections 2.4.1 and 2.4.2).

The Web 2.0/3.0 technologies empower both librarians and library users by providing a platform on which they can participate in the virtual public sphere by making significant contributions to knowledge through wikis, blogs, Facebook, or Twitter (see section 1.1). According to the library users, knowledge sharing is about being visible, acquiring new ideas, making positive contributions, or getting feedback on research related issues. These activities all allude to strengthening of the library as a public sphere, a public virtual space where people can meet and exchange ideas. This implies the benefits of democracy (through free sharing of knowledge on research topics) on the library websites.

The data indicated that user disempowerment has negative effects on user perceptions of e-service quality in academic libraries. Examples of significant user disempowerment identified in this study include user privacy, and librarian power. User privacy and librarian power present the highest challenges in overcoming user disempowerment. The Web 2.0/3.0 technologies may be good, but they present challenges in user privacy. Some of the postgraduate students who are aware of privacy issues indicated that they withheld from participating on the Web2.0/3.0 platforms for fear of 'getting into trouble' (see section 6.4.4). Yet if the real essence of libraries as democratic spaces is to be realised then such fears as expressed by the postgraduate should be removed. A deliberate strategy can address these and other challenges related to Web 2.0/3.0 technologies.

7.3 A Proposal for Implementing a Critical Evaluation Strategy

Over the years academic libraries have routinely evaluated the quality of their e-services. Many studies have focused on issues such as professionalism and proficiency levels of librarians, user studies, freedom of access to information, libraries as democratic spaces, the use and effects of ICTs in academic libraries, and library systems. However, there has been little/no investigation of the possible effects of the new library technologies on both the librarians and library users in terms of power and empowerment, and how they should be managed.

7.3.1 Critical Evaluation Strategy Model

A model of the strategy presented in Figure 36 represents the power dynamics in the Web 2.0/3.0 e-services in KLISC and GAELIC user satisfaction and dissatisfaction. The model is underpinned by an adaptation of a framework for the e-service offering illustrating that customers can experience processes and outcomes in all its five components namely: user interface, core services, facilitating services, supporting services, and complementary services(van Riel, *et al.,* 2001:366).The CES model differs from previous models on e-service in two ways. First, the sequence in which a library user may experience e-service quality satisfaction, and dissatisfaction in a service delivery process. Second, the outcome, or underlying causes of user satisfaction and dissatisfaction with e-service quality.
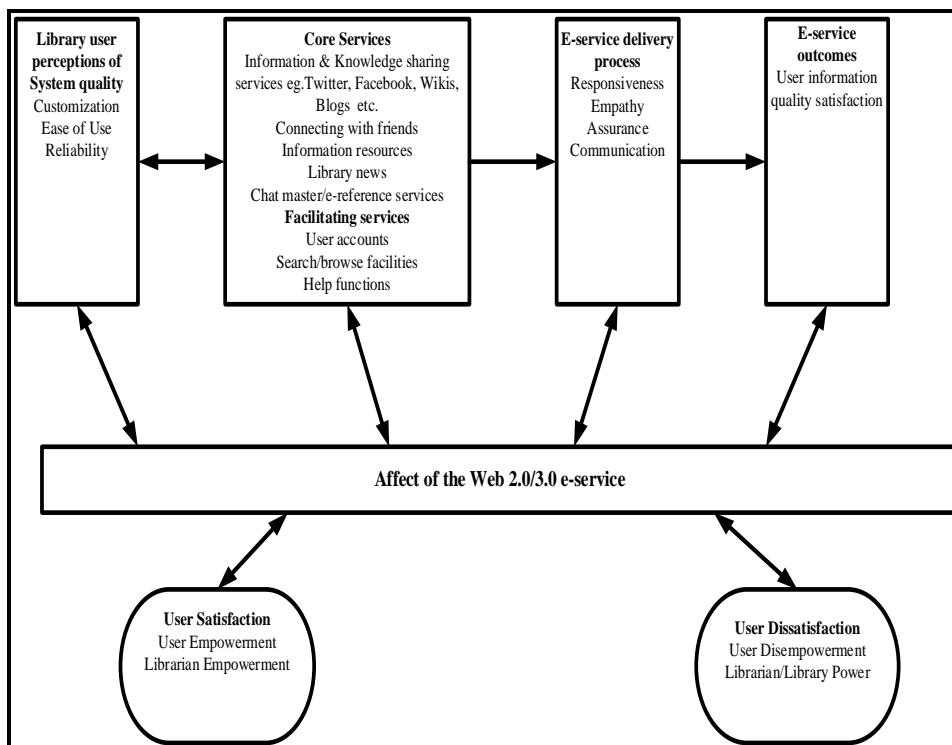
Figure 36: Critical evaluation strategy model

In this model, a library user may experience satisfaction or dissatisfaction at any point in the range of e-service interactions. What is significant in this model is that at each point where user satisfaction or dissatisfaction occurs, there are underlying power dynamics. When these are acknowledged and corrected the library users are likely to experience greater satisfaction with e-service quality. The next section gives a detailed description of the components of this model.

7.3.1.1 Library User Perceptions of System Quality

The system quality includes three aspects of the library website, which are customisation, ease of use, and reliability (see sections 6.3.1- 6.3.3). The library

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website users' (i.e. librarians and students) perceptions of the system quality are influenced as follows, according to the data generated.

7.3.1.1.1 Customisation

Customisation of the website is important because it marks an entry point for the entire user experience of the features of the website. User perceptions are formed at this level, and they impact user satisfaction or dissatisfaction. The ranking of customisation was average with no negative gap scores (see section 6.3.1). The library websites were well structured and users could understand how the information content was organised. Customisation of the websites is an important factor in e-service quality because it impacts on user satisfaction and dissatisfaction.

7.3.1.1.2 Ease of Use

Ease of use refers to the degree to which library website users can access content easily. The ranking on ease of use was average. However, there were negative gaps scores for some attributes (see section 6.3.2). These indicated that the system design needs to be improved for the users to experience a seamless transition between the main websites and Web 2.0/3.0 technologies such as Facebook or Twitter. Ease of use is therefore a significant factor of e-service quality and can influence perceptions on user satisfaction and dissatisfaction.

7.3.1.1.3 Reliability

This refers to the correct technical functioning of the site and the accuracy of service information and promises. It defines a user's perception of a website's performance. Reliability was ranked low in all the research sites (see section 6.3.3). It had gap scores below 0 and some negative values. This data indicate that reliability needs to be improved in all the research sites in this study. User perceptions of library websites reliability impact on user satisfaction and dissatisfaction of e-service quality.

User satisfaction or dissatisfaction of e-service quality at this stage of website use will be influenced by aspects of librarian power. Librarian power determines which services are made available by the librarian to the library users.

7.3.1.2 Core and Facilitating Services

The core and facilitating services in this model are similar to those in the model of van Riel, *et al*. (2001). However in this model, the focus is on Web 2.0/3.0 services in academic libraries. It includes information and knowledge sharing services, connecting with friends, library news, chat/instant messenger services and facilitating services.

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7.3.1.2.1 Information and Knowledge Sharing Services

These services are connected with the core Web 2.0/3.0 technologies such as Facebook, Twitter, wikis, or blogs that are popular in the five research sites. The data indicated that the library users and librarians acknowledge the importance of information and knowledge sharing services in academic libraries (see sections 6.4.1 and 6.4.3).They represent ontological and epistemological features of LIS and constitute a new set of technologies that bring empowerment to both librarians and library users. Librarians should invite users to share their knowledge with other users as well as with librarians. For example, when library users share knowledge on their research topics using Twitter, they feel a sense of accomplishment when there is positive feedback from their Twitter followers. This sense of accomplishment is a reflection of user empowerment. When the library users are empowered and share information and knowledge using Web 2.0/3.0 technologies, the result is greater user satisfaction with e-service quality.

7.3.1.2.2 Connecting with Friends

This is a core service in the model because it forms the basis of all interactions. The data identified connecting with friends as significant in user empowerment (see section 6.4.3). Connecting with friends provides the library users with an opportunity to network. These networks do not have spatial limitations. Ideas can be discussed in real-time globally. This service enhances the idea of a virtual public sphere, a platform on which users meet to discuss issues. Connecting with friends is

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a form of empowerment. User empowerment through connecting with friends improves user satisfaction of e-service quality.

7.3.1.2.3 Library News

Library news refers to a service through which the library communicates events, activities, or any other information that may be deemed noteworthy. Library news may include current awareness, civic information, various user training program schedules, marketing new library resources or service, etc. In most libraries today, this service is facilitated using Web 2.0/3.0 technologies. The data indicated that Facebook and Twitter accounts belonging to various libraries offer library news (see sections 6.1.1 to 6.1.5). Library news provides an opportunity for the librarians to inform their users of their choice of resources or services (see section 6.3). This can be identified as a form of librarian power. The Web 2.0/3.0 technologies service has the potential to showcase librarian power. When librarian power is used to empower the library users, it will raise levels of user satisfaction with e-service quality.

7.3.1.2.4 Chat Master/E-Reference Services

These are services offered through instant messaging and occur in real-time. The data indicated that the librarians can choose to communicate with their users in real time using this platform (see section 6.3.4). It enhances the value of e-services when the users are able to connect with the librarians from remote locations. It also offers users timely access to information. This can be described as a form of librarian

empowerment. When utilised optimally, this service will positively influence user satisfaction with e-service quality.

7.3.1.2.5 The Facilitating Services

These are services that make it possible for the library website's users to connect to the library networks. They require user identification through login with passwords. User identification, when using library networks or associated services, describes aspects of user privacy. The data indicated that some users prefer to be anonymous when making contributions on discussion forums using Web 2.0/3.0 technologies. Others also indicated that user identification may have implications for user privacy. User privacy is identified as a form of user disempowerment (see section 6.4.4). This disempowerment leads to user dissatisfaction with e-service quality. The core and facilitating services will lead either to user satisfaction or dissatisfaction, depending on underlying power dynamics.

7.3.1.3 E-Service Delivery Process

The e-service delivery process refers to the activities that must function if a service is to be produced. This model identifies four e-service delivery processes that are significant in ensuring satisfactory e-service quality. They are responsiveness, empathy, assurance, and communication.

7.3.1.3.1 Responsiveness

Responsiveness measures the preparedness of library staff to provide service. The data of this study indicate that it is ranked low across all five of the research sites (see section 6.3.4). This dimension has some negative gap scores and there is no score from zero and above. Responsiveness is about the librarian's ability to communicate effectively with the library users through interactions using Facebook or Twitter. The library users in this study are dissatisfied with this dimension. This shows that they may lack effective communication skills or time to use Web 2.0/3.0 technologies to communicate with their users. As a result, the library users in this study have indicated that they are dissatisfied with responsiveness as a factor in the e-service quality.

7.3.1.3.2 Assurance

Assurance measures the knowledge of the library staff and their ability to work with Web 2.0/3.0 technologies. It also entails a thorough understanding of the resources and the ability of the librarians to convey confidence as they interact with the library users. The data indicated that assurance had average rankings (see section 6.3.5). However, there were negative values in the gap scores. This dimension has implications for librarians' level of proficiency in Web 2.0/3.0 technologies. Librarians will be empowered when they achieve expert levels of proficiency in the use of Web 2.0/3.0 technologies. Expert levels of proficiency in the use of Web 2.0/3.0 technologies will result in greater/improved user satisfaction with the e-service quality. Assurance is significant in attaining satisfactory e-service quality.

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7.3.1.3.3 Empathy

The empathy service quality dimension refers to how the library cares and gives individualised attention to their users. It reflects what the library does to make the library users feel valued. The data indicated that empathy was moderately ranked (see section 6.3.6). The gap scores were also moderate with no negative values. Empathy is significant in e-service process because it replaces the direct human contact. Librarians must show courtesy and be timely in their written communication to the users. When this happens, the library users will experience user satisfaction with the e-service quality. In this case, user satisfaction also denotes a form of librarian empowerment.

7.3.1.3.4 Communication

This is defined as any form of correspondence from the librarians to the library users. It may include the use of e-mail, chat rooms, Facebook, or Twitter. Although it has similar features to library news, it is an important dimension on its own. Web 2.0/3.0 technologies offer significant channels for effective communication between the libraries and their users. The data indicated that communications was ranked fairly satisfactory and the gap scores indicate values of two (see section 6.3.7). This means that the library users were satisfied with the quality of communications in their libraries. This implies that librarian power had been mobilized (see sections 6.4.1 and 6.4.2).

7.3.1.4 E-Service Outcomes

E-service outcomes are the final dimension in e-service quality evaluation. Outcomes will reflect a cumulative assessment of the individual dimensions reviewed earlier in this model. When considering e-service quality outcomes, the user satisfaction dimension is taken into account. In addition, an important aspect of user satisfaction that should be considered is the information quality. Therefore, e-service quality outcomes of Web 2.0/3.0 technologies can be defined as a measure of user satisfaction.

7.3.1.4.1 User Information Quality Satisfaction

User information quality satisfaction and user satisfaction are sometimes used interchangeably. User satisfaction refers to the opinions of the library users about a specific information service which they use. The data indicated that the library users at the five research sites were moderately satisfied with the information quality and services they received (see section 6.3.8). There were no negative gap scores values. User satisfaction is a significant factor of e-service quality. The content generated and shared using Web 2.0/3.0 technologies empowered the library users in their academic and personal research work. However, the data indicated a need to improve user satisfaction with e-service quality by enhancing the user experience of Web 2.0/3.0 technologies.

7.3.1.5 Affect of Service

Affect of service is defined as the sum total of feelings or perceptions, positive or negative that a library user gets after using a library e-service (Barry & Oliver, 1996; Leys, 2011). Affect can be redefined in terms of user satisfaction or dissatisfaction (see section 6.4.8). In this model user satisfaction (positive affect) or user dissatisfaction (negative affect) can be linked to the key critical theory issues of power, empowerment, or disempowerment. At each stage in the model a user may experience levels of e-service satisfaction or dissatisfaction. These experiences imply underlying dynamics of power, empowerment and disempowerment.

This model identifies some of the significant aspects of the proposed critical evaluation strategy for e-service quality assessment in a Web 2.0/3.0 environment in KLISC and GAELIC academic libraries. This model shares similarities with that by van Riel, *et al.*, (2001) in the conceptualization of the e-service components. However, this model differs on the underpinning power dynamics affecting user satisfaction and dissatisfaction with Web 2.0/3.0 e-services in academic libraries.

7.4 Benefits of Implementing the Model

The following benefits will ensue when the KLISC and GAELIC academic libraries apply a critical evaluation strategy in their e-services.

- The critical evaluation strategy has been successfully applied to an existing tool (E-SERVQUAL) the data gave deeper insights about the e-

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service gaps. It can also be applied to a tool such as LibQUAL developed for use in library service quality evaluations.

- This study examined some of the power dynamics (see section 2.5.3) that manifest when a technology such as Web 2.0/3.0 is adapted by human beings. An understanding of these power dynamics will contribute to finding ways of improving user satisfaction with the e-service quality in KLISC and GAELIC academic libraries.

- The data identified relations of power, empowerment, and disempowerment and their effects on the Web 2.0/3.0 e-service processes and outcome. These relations are linked to user satisfaction and dissatisfaction with e-services in KLISC and GAELIC academic libraries.

- The data was the result of a combination of methodological approaches that may form ground-breaking approaches in LIS research. The application of an embedded mixed method research design at several levels opens new ways of inquiry in LIS.

7.5 Challenges of Implementing the Model

The following challenges were identified:

- **Adapting the power concept.** Technology should be recognized and understood as a source of power struggles between the librarians and library users. The technology/ power concepts present challenges that may not be

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obvious to the users of technology. Therefore, new methods of examining power dynamics related to library technologies should be adapted for library e-service evaluation tools.

- **Adapting the empowerment concept.** The librarians should understand that library and information skills are forms of empowerment. They should empower the library users by offering library training programs.

- **Embracing librarian power as a form of professional power**. Librarians should consciously acknowledge/recognize that they possess professional power. This power is embedded in the library and information skills that they use in a Web2.0/3.0 environment.

- **Acknowledging Web 2.0/3.0 technologies as enablers of e-service quality.** Academic library managers and librarians should incorporate the Web 2.0/3.0 technologies into library services and processes with full awareness of power dynamics involved. These technologies will not only add value to the e-service quality, but also provide a platform for the academic librarians and their library users to create and share information and knowledge.

- **Re-conceptualizing the academic library as a virtual public sphere.** Academic librarians should understand the value of Web 2.0/3.0 in connecting library users and allowing them to share and exchange ideas in a virtual public sphere. KLISC and GAELIC academic librarians should understand that there are new forms of knowledge creation and sharing practices through the Web 2.0/3.0 technologies that challenge their traditional roles.

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The adaptation and implementation of this model by individual academic libraries in these consortia will be more effective through the use of critical success factors (CSFs).

7.6 CSFs for Successful Strategy Implementation

New technologies not only continue to be applied to services in academic libraries, but also present challenges to the librarians and library users. Identifying CSFs will help KLISC and GAELIC libraries to improve their Web 2.0/3.0 e-services and monitor the related power dynamics. The CSFs outlined in this section are the key conditions for the successful implementation of the model. The CSFs must first be aligned with the individual library mission statements. Figure 37 presents the KLISC and GAELIC library mission statements that were identified during the 'set criteria' for the five research sites selected for this study (see section4.2.1).

7.6.1 Library Mission Statements

To facilitate and develop teaching and learning by:
Providing equitable access to digital information resources
Providing a comprehensive and diverse information service
Promoting information literacy and lifelong learning
Integrating information resources into teaching and learning
Fostering partnerships through collaborations and cooperation

To provide quality information services that will **empower** the University in carrying out its core activities of teaching, learning, research and community services/consultancy.

To provide relevant information services to meet teaching, learning and research needs of the university

Library Services will adopt the "High Tech, High Touch" scenario by focusing on Leadership, Innovation & Technology, Partnerships & Client Services, and Staff Development.

Library Mission Statements

To provide a dynamic learning environment and quality, user-centred information services that enhance teaching, research and scholarship while inculcating life-long learning skills and fostering human development.

Site E   Site A   Site D   Site B   Site C

Figure 37: KLISC and GAELIC library mission statements

The library mission statements of all the research sites implicate user empowerment, especially via information and lifelong learning skills. Site A explicitly uses the term empower in its mission statement; Site C implies this through lifelong learning skills and human development. The CSFs identified below affirm the library mission statements of the research sites examined in this study. They provide a point of departure for the participating libraries to improve user satisfaction and the quality of Web 2.0/3.0 services.

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7.6.2 Critical Success Factors

The CSFs identified in Figure 38 affirm the library mission statements of the KLISC and GAELIC research sites.
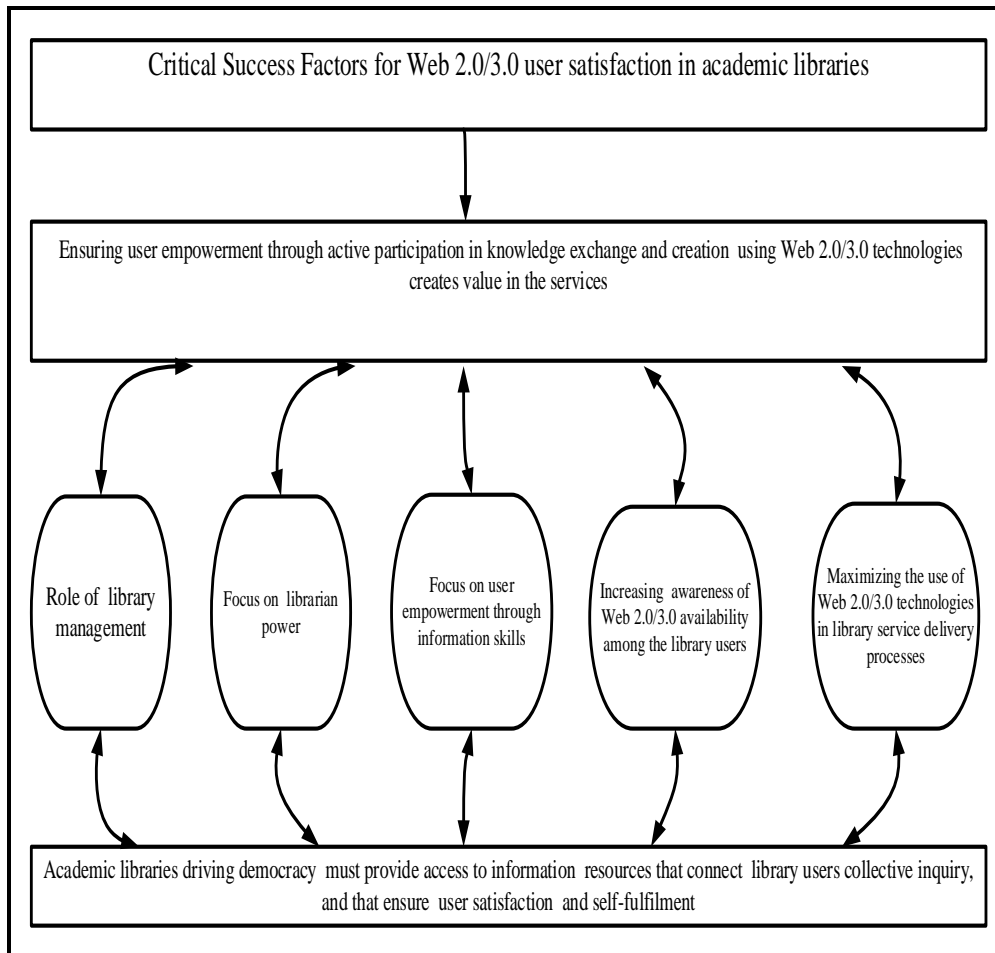
Figure 38: CSFs for improved Web 2.0/3.0 user satisfaction

The five CSFs identified include: the role of library management, a focus on librarian power; a focus on user empowerment; creating awareness of the Web 2.0/3.0 services; and maximising the use of Web 2.0/3.0 technologies. There may be other CSFs, but the satisfactory scores from the selected sites confirm these to be the most relevant.

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7.6.2.1 Role of Library Management

Library management should take primary responsibility for implementing the CES and play a key role in e-service evaluation. The CES should be in harmony with the library's mission statement to facilitate the transformation of e-services. The CES should aim at producing democratic spaces that nurture both user and librarian empowerment through active participatory experiences (see sections6.4.2 and 6.4.3).This will drive democracy in academic libraries by encouraging information sharing and knowledge creation among the library users and librarians. The involvement of the executive ties of management will ensure that library users have a 'positive affect' and will improve user satisfaction with the Web 2.0/3.0 e-service quality in KLISC and GAELIC academic libraries.

7.6.2.2 Focus on Librarian Power

The public and explicit recognition of academic librarian power is an important CSF for this model. If academic librarians know, understand, and exercise their power, the library users will become more respectful of it. Librarian power can be identified by the professional skills and knowledge, and high competency levels in Web 2.0/3.0 technologies. There should therefore be a sustained focus by academic librarians on excellence in the training of users to demonstrate and confirm their professional power.

7.6.2.3 Focus on User Empowerment

Library user empowerment through information skills is a significant CSF in this model. Librarians should recognise the value of information skills for the library users as a form of user empowerment in a Web 2.0/3.0 environment. According to the data, library user empowerment is already happening. The library users indicated that they get a feeling of accomplishment when they make contributions to knowledge using the Web 2.0/3.0 technologies. Empowered library users will be able to form communities of practice through which they can share ideas and create knowledge using the Web 2.0/3.0 technologies (see section 6.4.3). By encouraging and even participating in these information skills, academic librarians will drive democracy. This will promote a 'positive affect' of the e-service and user satisfaction with the Web 2.0/3.0 e-service quality in the KLISC and GAELIC academic libraries.

7.6.2.4 Increasing Awareness of Web2.0/3.0 Technologies

Increasing awareness of Web 2.0/3.0 technologies is an important CSF because it will enhance the value of e-services. Web 2.0/3.0 technologies are beneficial to academic libraries in several ways. For example, academic libraries can utilise the Web 2.0/3.0 technologies to connect with their library users in real-time, and at no extra cost. The data indicated that the librarians have not utilized all the opportunities available to them to increase awareness of Web 2.0/3.0 technologies in their libraries (see sections 5.2.2 and 6.1).When library the users are aware of the

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availability of Web 2.0/3.0 technologies they will be able to use the libraries as virtual public spheres and share ideas about events, civic information, and activities within and even across campuses. Such democratic practices will improve user satisfaction with e-service quality in the KLISC and GAELIC academic libraries.

7.6.2.5 Maximizing the Use of Web 2.0/3.0 in Service Delivery Processes

Maximizing of Web 2.0/3.0 technologies will add value to the existing e-service offerings in academic libraries. The data indicated that Web 2.0/3.0 technologies are sources of power and empowerment in the KLISC and GAELIC academic libraries (see section 6.4). Maximising the use of Web 2.0/3.0 technologies will increase direct communication between library users and librarians, and promote sharing of ideas and knowledge. This will increase the 'positive affect' of e-service quality and user satisfaction.

7.7 Summary

This chapter presented a model of CES for the Web 2.0/3.0 technologies in KLISC and GAELIC academic libraries, and their five CSFs to ensure its successful implementation. The strategy aims at effectively managing the power dynamics in these academic libraries. The chapter identifies also the benefits and challenges that could be experienced during the implementation of the CES. The CES model may be integrated into existing e-service quality evaluation tools such as LibQUAL or E-SERVQUAL. The chapter concludes by presenting the CSFs required to

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successfully implement the model in KLISC and GAELIC academic libraries. The

next chapter presents the findings, recommendations and conclusion of this study.

CHAPTER 8

FINDINGS, RECOMMENDATIONS, AND CONCLUSION

Often, we are too slow to recognize how much and in what ways we can assist each other through sharing expertise and knowledge. - Owen Arthur

8.0 Introduction

The study evaluated the Web 2.0/3.0 e-service quality factors using E-SERVQUAL gap analysis framework and a critical evaluation component in five academic libraries in two library consortia, KLISC and GAELIC. Academic libraries in a knowledge society have special opportunities to encourage democratic practices through the creation, sharing, and distribution of knowledge and teaching of information skills to the library users. Drawing on critical theory in LIS, the study conceptualized, operationalized, and then probed the power dynamics affecting user satisfaction of Web 2.0/3.0 e-service quality. The study applied an embedded mixed method research design to generate qualitative and quantitative data.

The study sought to answer the following principal question: **How can a study of the new power dynamics in a Web 2.0/3.0 environment help to improve user satisfaction with e-service quality, and to strengthen the democratic roles of academic libraries?**

To answer this question the study formulated the following sub-questions:

1. What are the limitations of the E-SERVQUAL gap analysis framework in evaluating user satisfaction with e-service quality?

2. Which theoretical framework is suitable to study the new power dynamics affecting relations between academic librarians and library users in Web 2.0/3.0 technology-driven knowledge societies?

3. How can a Critical Evaluation Strategy be applied to manage the new power dynamics underlying user satisfaction?

4. Which Critical Success Factors are necessary for an effective Critical Evaluation Strategy to improve user satisfaction, and to strengthen the democratic roles of academic libraries?

8.1 Findings

The findings of this study are based on the data collected through the subject literature, Web content analysis, and questionnaires.

8.1.1 Sub-Question 1

What are the limitations of the E-SERVQUAL gap analysis framework in evaluating user satisfaction with e-service quality?

Past studies have identified and stated theoretical and operational limitations of the original SERVQUAL gap analysis framework. This study confirmed the theoretical and operational limitations of the E-SERVQUAL gap analysis framework.

Theoretical: The literature on service quality calls for industry-specific E-SERVQUAL scales. This study identified and adapted eight E-SERVQUAL gap analysis factors. The critics of this approach state that merely adapting the tool and selecting a combination of factors for specific studies does not make it unique for

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specific contexts. This study added a critical theory-based component to the E-SERVQUAL gap analysis framework for contextualization purposes.

The E-SERVQUAL gap analysis framework focuses on the e-service delivery process but not the outcome of e-service encounters. Critics of this approach state that both process and outcome are essential in e-service quality assessment. The findings of this study indicate that the SERVQUAL gap analysis framework did not provide in-depth information on the causes of user satisfaction and dissatisfaction as outcomes of Web 2.0/3.0 e-service assessment (see sections 5.3 and 6.3.9). However, the additional critical theory-based component gave findings on the factors underpinning user satisfaction and dissatisfaction outcomes (see sections 3.5.1.1 and 6.4).

Operational: Previous studies indicate that customers use perceptions other than expectations to evaluate service quality. Critics point to the limitations of E-SERVQUAL gap analysis framework regarding the measurement of expectations. Using the E-SERVQUAL gap analysis framework, this study applied a 'perceptions only' approach (see section 3.5.1).

The E-SERVQUAL gap analysis framework is strong on quantitative evaluation but weak on qualitative evaluation. There is limited evidence on the use of the E-SERVQUAL gap analysis framework in evaluating the power dynamics affecting user satisfaction with Web 2.0/3.0 technology-driven services in academic libraries.

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This study helped to fill the gap by providing evidence of the power dynamics affecting user satisfaction in e-service quality (see section 6.4).

8.1.2 Sub-Question 2

Which theoretical framework is suitable to study the new power dynamics affecting relations between academic librarians and library users in Web 2.0/3.0 technology-driven knowledge societies?

A critical theory-based component was added to the E-SERVQUAL gap analysis framework. As such it constituted a suitable theoretical framework to study the new power dynamics affecting relations between academic librarians and library users in Web 2.0/3.0 technology-driven knowledge societies for the following reasons:

- It is a framework that allows for a blend of different theoretical approaches;

- It addresses some epistemological and ontological features of information services by focusing on the users' role in knowledge generation and knowledge sharing, as well as the power dynamics between librarians and users in a Web 2.0/3.0 environment (see sections 2.4.1 and 2.4.2);

- It focuses on the Web 2.0/3.0 technologies in the context of power and empowerment (see section 6.4); and

- Through its transformative and liberationist stances, the critical theory-based component enables a deeper understanding of power and empowerment relations between academic librarians and library users in a Web 2.0/3.0 environment.

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8.1.3 Sub-Question 3

How can a Critical Evaluation Strategy be applied to manage the new power dynamics underlying user satisfaction?

A CES overcomes the limitations of E-SERVQUAL Gap Analysis framework as a multi-component strategy in the following ways:

Overcoming theoretical limitations:

- A CES draws on both ontological and epistemological dimensions of LIS to understand power dynamics (see section 5.5.1).

- A CES conceptualizes librarian power, librarian and user empowerment in a Web 2.0/3.0 environment (see section 5.5.1).

- A CES conceptualizes disempowerment as the untapped potential of librarian power in a Web 2.0/3.0 environment (see sections 6.2 and 6.4.4).

Overcoming operational limitations:

- A CES combines quantitative and qualitative data to evaluate Web 2.0/3.0 e-service quality more comprehensively in KLISC and GAELIC academic libraries (see section 7.3.1). The quantitative data evaluates the Web 2.0/3.0 e-service quality based on the respondents' perceptions, but has limited interpretation about the causes of user satisfaction and dissatisfaction.

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- CES operationalizes librarian power, librarian and user empowerment, and disempowerment (see sections 5.5 and 7.6.2). The findings of this study indicate that power relations exist, and that they provide an in-depth understanding of the causes of user satisfaction and dissatisfaction with the Web 2.0/3.0 e-service quality. By identifying these relations, the library managers and librarians are able to pinpoint the specific aspects of the e-service quality that need improvement (see section 7.3.1).

- The qualitative data provides additional insights about the power dynamics affecting user satisfaction with the Web 2.0/3.0 e-service quality (see section 6.4).

Using an embedded mixed methods research design, qualitative and quantitative data generated richer data for this study. This study identified the theoretical and operational limitations of the E-SERVQUAL gap analysis framework. A CES was developed to overcome these limitations.

8.1.4 Sub-Question 4

Which Critical Success Factors are necessary for an effective Critical Evaluation Strategy to improve user satisfaction, and to strengthen the democratic roles of academic libraries?

The following five Critical Success Factors were identified as necessary for the successful implementation of the CES in KLISC and GAELIC academic libraries:

- Library management should focus on facilitating the transformation of e-service delivery processes in academic libraries by integrating the Web 2.0/3.0 e-service strategy with the library's mission.

- A focus on librarian power through recognition of the power status of the academic librarian.

- A focus on user empowerment through library training programs aimed at the acquisition of relevant information skills.

- Creating awareness of the Web2.0/3.0 e-services available to the library users in academic libraries.

- Maximising the use of Web 2.0/3.0 technologies for value-added e-service offerings in academic libraries given that these technologies are sources of power and empowerment to both librarians and library users.

The implementation of CES may face theoretical and operationalization challenges.Web 2.0/3.0 technologies strengthen democratic practices in academic libraries. These technologies serve as open platforms for creating, and sharing information and knowledge to library users. Librarians strengthen democratic practices by teaching library users information skills that enable them to access and share information and knowledge using Web 2.0/3.0 technologies.

8.1.5 The main research question

How can a study of the new power dynamics in a Web 2.0/3.0 environment help to improve user satisfaction with e-service quality, and to strengthen the democratic roles of academic libraries?

User satisfaction can be improved by using a critical evaluation strategy to:

- **Conceptualize librarian power, librarian empowerment, and user empowerment in a Web 2.0/3.0 environment**. This led to understanding the causes of user satisfaction and dissatisfaction with the e-service quality.

- **Overcome the theoretical limitations of E-SERVQUAL gap analysis framework.** Drawing on both ontological and epistemological dimensions of LIS led to a better understanding of the new power dynamics underpinning user satisfaction in KLISC and GAELIC academic libraries.

- **Overcome the operational limitations of the E-SERVQUAL gap analysis framework.** By combining quantitative and qualitative data in the evaluation of Web 2.0/3.0 e-service quality in KLISC and GAELIC academic libraries. The quantitative data evaluated the Web 2.0/3.0 e-service quality but had limited interpretation about the causes of user satisfaction and dissatisfaction. The qualitative data enabled the researcher to probe more thoroughly the

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new power dynamics underpinning user satisfaction with Web 2.0/3.0 e-service quality in academic libraries.

The democratic roles of academic libraries can be strengthened by:

- **Maximizing the use of Web 2.0/3.0 technologies in academic libraries**. The Web 2.0/3.0 technologies are the backbone of knowledge creation and sharing practices in academic libraries. Knowledge creation and sharing leads to user satisfaction with Web 2.0/3.0 e-service quality, and strengthens the democratic roles of KLISC and GAELIC academic libraries.

- **Re-conceptualizing academic libraries as deliberative virtual public spheres.** Librarians should create awareness of the Web 2.0.3.0 tools in academic libraries. These tools provide a platform for users to engage in virtual real-time conversations on issues ranging from personal life experiences to politics, and academia. The virtual real-time conversations strengthen the democratic roles of KLISC and GAELIC academic libraries.

- **Increasing participation through communication among librarians and library users.** The Web 2.0/3.0 technologies can be used to increase the value of knowledge by participation through communication. This leads to personal empowerment and strengthens the democratic roles of KLISC and GAELIC academic libraries.

8.2 Recommendations

The following recommendations are based on the findings of the study:

- The KLISC and GAELIC academic librarians should become aware that the E-SERVQUAL gap analysis framework does not provide an in-depth understanding of the new power dynamics affecting user satisfaction with the e-services. The introduction of the Web 2.0/3.0 technologies into academic libraries has changed the way users access information and knowledge resources, creating a need for new evaluation approaches.

- The KLISC and GAELIC academic libraries should adapt and implement the CES. The findings indicate that there are new power dynamics affecting user satisfaction with e-service quality.

- The KLISC and GAELIC academic libraries should conduct their own studies based on the proposed CES, and compare the findings with those of other library e-service quality evaluation tools such as LibQUAL. Such studies will lead to standardization of e-service quality evaluations, and help to identify the causes of user satisfaction and dissatisfaction in academic libraries.

- The library managers of KLISC and GAELIC academic libraries should redefine their library missions to incorporate key CES concepts such as empowerment.

- The KLISC and GAELIC library managers should develop ways to deal with the librarian power concept. This can be achieved through understanding and

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embracing librarianship as a form of professional power, for example the recent granting of statutory status to LIS professionals in South Africa.

- The KLISC and GAELIC library managers should acknowledge the empowerment concept and offer training to both their librarians and library users in the use of Web 2.0/3.0 technologies to enhance the e-service quality of library processes and e-service quality outcomes.

- The KLISC and GAELIC librarians should acknowledge that Web 2.0/3.0 technologies are indeed enablers. The findings of this study indicate that they are popular with the postgraduate students who use them for academic purposes.

- The KLISC and GAELIC academic librarians should affirm the idea of the academic library as a virtual public sphere, and incorporate it into the library service ethos. The findings of the study indicate that the postgraduate students already participate in a lively virtual public sphere as they generate and share their ideas and knowledge using the Web 2.0/3.0 technologies. This strengthens the democratic roles of academic libraries.

8.3 Suggestions for Further Research

This study has identified the following areas that need further research:

- More empirical studies are necessary to test and assess the effectiveness of the proposed CES in academic libraries in other African countries. The research should aim at making improvements on the proposed model.

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- There should be further research aimed at the identification of other combination sets of CSFs that can be used to test the effectiveness of the proposed CES.

- Further studies should operationalize the power and empowerment concepts based on the findings of this study as a way to investigate causes of user satisfaction and dissatisfaction with e-service quality by using different target groups.

- Further studies using CES and other e-service quality tools should be conducted and the findings compared with those of this study. The use of the proposed CES together with other e-service quality tools can help in identifying what other tools can provide an in-depth understanding on the power dynamics affecting user satisfaction with e-service quality in academic libraries.

8.4 Summary

The study revealed that there are new power dynamics affecting user satisfaction with the Web 2.0/3.0 e-service quality in three KLISC and two GAELIC academic libraries. The E-SERVQUAL gap analysis and a critical theory component provided an appropriate framework for evaluating user satisfaction with Web 2.0/3.0 e-service quality.

This study has provided an innovative approach to Web 2.0/3.0 e-service quality evaluation based on the critical theory concepts of power, empowerment and disempowerment. It revealed that the democratic roles of academic libraries can be strengthened by maximizing the use of Web 2.0/3.0 technologies. It has contributed to LIS research through the application of LIS theory to LIS practice by investigating the power dynamics underpinning and affecting user satisfaction with the Web 2.0/3.0 e-service quality in academic libraries.

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APPENDIX A

07 March 2013

Dear respondent

INVITATION TO PARTICIPATE IN A STUDY ON THE QUALITY OF LIBRARY E-SERVICES

You are invited to participate in an academic research survey conducted by Lilian I. Oyieke, a PhD student in the Department of Information Science at the University of Pretoria.

The purpose of this study is to evaluate e-Service Quality in university libraries in Kenya and South Africa.

This is an anonymous and confidential survey. Your identity will not be revealed and the answers you provide will be used for research purposes only and your individual responses cannot be identified and linked to you as an individual.

Your participation in the research project is very important for us, but it is also voluntary. The survey should not take more than 20 minutes to complete.

If you have any questions regarding this survey, please contact the following persons: Mrs Lilian I.Oyieke on (012) 420 3120 or email: lilian.oyieke@up.ac.za; or Prof Archie Dick on (012) 420 2294 or email: archie.dick@up.ac.za

By completing this questionnaire, you are giving your consent to participate in the study on a voluntary basis:

I Agree, and I give my consent to participate anonymously	
I disagree, and would like to be excluded from the study	

Reference number: EBIT/15/2013   7 May 2013

Mrs LI Oyieke
Department of Information Science
IT Building 6-55
University of Pretoria

Dear Mrs Oyieke,

FACULTY COMMITTEE FOR RESEARCH ETIDCS AND INTEGRITY

Your recent application to the EBIT Ethics Committee refers.

1   I hereby wish to inform you that the research project titled "**New power dynamics in academic libraries: developing a critical evaluation strategy to improve user satisfaction with web 2.0/3.0 services**" has been approved by the Committee.

         This approval does not imply that the researcher, student or lecturer is relieved of any accountability in terms of the Codes of Research Ethics of the University of Pretoria, if action is taken beyond the approved proposal.

2   According to the regulations, any relevant problem arising from the study or research methodology as well as any amendments or changes, must be brought to the attention of any member of the Faculty Committee who will deal with the matter.

3   The Committee must be notified on completion of the project.

The Committee wishes you every success with the research project.

Prof. .J.   nekom
Chair: Faculty Committee for Research Ethics and Integrity
FACULTY OF ENGINEERING, BUILT ENVIRONMENT AND INFORMATION TECHNOLOGY

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APPENDIX C

REPUBLIC OF KENYA

NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

Telephone: 254-020-2213471, 2241349, 254-020-2673550
Mobile: 0713 788 787, 0735 404 245
Fax: 254-020-2213215
When replying please quote
secretary@ncst.go.ke

P.O. Box 30623-00100
NAIROBI-KENYA
Website: www.ncst.go.ke

NCST/RCD/13/013/26

Our Ref:

29th April, 2013
Date:

Lilian Ingutia Oyieke
University of Pretoria
South Africa.

RE: RESEARCH AUTHORIZATION

Following your application dated *(1 April, 2013* for authority to carry out research on **"*New power dynamics in academic libraries: developing a critical evaluation strategy to improve user satisfaction with web 2.0/3.0 services"*** I am pleased to inform you that you have been authorized to undertake research in Nairobi County for a period ending 31st July, *2013.*

You are advised to report to the County Commissioner and the County Director of Education, Nairobi County before embarking on the research project.

On completion of the research, you are expected to submit two hard copies and one soft copy in pdf of the research report/thesis to our office.

DR M.K. RUGUTT, PhD, HSC.
DEPUTY COUNCIL SECRETARY

Copy to:

The County Commissioner
The County Director of Education
Nairobi County.

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APPENDIX D

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Engineering, Built Environment
& Information Technology
Department of Information Science

07 March 2013

Dear respondent

INVITATION TO PARTICIPATE IN A STUDY ON THE QUALITY OF LIBRARY E-SERVICES

You are invited to participate in an academic research survey conducted by Lilian I. Oyieke, a PhD student in the Department of Information Science at the University of Pretoria.

The purpose of this study is to evaluate e-Service Quality in university libraries in Kenya and South Africa.

This is an anonymous and confidential survey. Your identity will not be revealed and the answers you provide will be used for research purposes only and your individual responses cannot be identified and linked to you as an individual.

Your participation in the research project is very important for us, but it is also voluntary. The survey should not take more than 20 minutes to complete.

If you have any questions regarding this survey, please contact the following persons: Mrs Lilian I.Oyieke on (012) 420 3120 or email: lilian.oyieke@up.ac.za; or Prof Archie Dick on (012) 420 2294 or email: archie.dick@up.ac.za

By completing this questionnaire, you are giving your consent to participate in the study on a voluntary basis:

I Agree, and I give my consent to participate anonymously	
I disagree, and would like to be excluded from the study	

Appendix E

This is a questionnaire intended for librarians of a Higher Education institution: University
The questionnaire comprises three parts (A to C)
Part A -   a set of 6 statements including personal data and use of web 2.0/3.0 technologies

*Part B -   a set of 40 statements on your assessment of the quality of e-services delivered within **your** university, compared with the quality of e-service in an ideal university library, and 1 statement on overall service satisfaction*

Part C -   three open-ended questions

Part A

1. Which of the following best describes your understanding of Web 2.0? Tick [√**]** in the appropriate box.

Read and write web	
Information Sharing	
User centered web	
Tools on the web	
All the above	

2. Considering that a novice Web 2.0 librarian has skills level 1, and an expert web 2.0 librarian is at level 3.

Novice (Often requires assistance)   [1]

Proficient (Occasionally requires assistance)   [2]

Expert (Does not require any assistance)   [3]

Rate your Web 2.0 skills levels on each of the following statements. Tick [√**]** in the appropriate box.

	Novice	Proficient	Expert
	1	**2**	**3**
Creating a blog on a social networking site e.g. face book or twitter			
Contributing to a blog			
Searching for other people's blogs			
Using instant messaging tools			
Subscribing and unsubscribing on RSS feed			
Creating a wiki			
Using social tagging			
Modifying the functionality of a social networking site such as adding a picture, joining a group, or changing the theme e.g. face book or twitter			
Editing a profile in a social networking site e.g. Face book or Twitter			

3. Rate the usage of the web 2.0 applications in the table below. Tick [√] in the appropriate box.

	Hourly	Daily	weekly	Monthly
	1	2	3	4
Face book				
Twitter				
Blogs				
Wikis				
RSS				
Instant Messaging				
Social Tagging				
Social Bookmarking				

4. Please comment on the following statement:

Academic libraries should **not** incorporate the use of social media into its services because social media has no academic relevance.

_____
_____
_____
_____
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_____

Part B

5. This section of the questionnaire contains 40 statements relating to the quality of e-service delivery of your university library. Use the ranking below to provide your assessment by ticking [√] in each appropriate box.

SD=Strongly Disagree   [1]
D=Disagree   [2]
N=Neutral   [3]
A=Agree   [4]
SA=Strongly Agree   [5]

	SD	D	N	A	SA
	1	**2**	**3**	**4**	**5**
SYSTEM QUALITY					
FACTOR ONE Customization					
The library Web site informs and assists users in personalizing their use of web 2.0/3.0 sites such as Face book or Twitter					
The library Web Site guides users in personalizing the use of online databases					
The library Web site provides online information services that are easy for users to contact me at any time by online enquiry form					
The library Web site utilizes colors, backgrounds, fonts, icons, images, text size, and layout that are easy to view					
The library Web site is well structured with menus that help users to understand how information/content is organized					
FACTOR TWO Ease of Use					
The library Web site provides gives users pointers to useful resources					
The links on the library Web site are useful for discovering information sources					
The headings and labels on each page are used consistently					
The library provides computers with e-mail and Twitter and Face book links which improves ease of use					
It is easy to return to the library Web site is after using other Web 2.0/3.0 sites					
SERVICE QUALITY					
FACTOR THREE Reliability					
The library staff make relevant information available using Web 2.0/3.0 technologies such as Face book and Twitter					
The library staff respond to online reference questions promptly					
The online catalog is a comprehensive source of information about all materials in the library's electronic collections including links to SNS's					
The reference library staff provide correct answers to reference questions					
The library Web site is kept current by regular updating of its content					

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	SD	D	N	A	SA
	1	2	3	4	5
FACTOR FOUR Responsiveness					
The library staff communicate with users effectively through Internet chat, text messaging etc					
The library Web site periodically prompts users to provide feedback on service satisfaction					
I use the library Web site to interact with library users					
The library shares news and other information through Face book and Twitter					
The library staff delivers information on new journals and other resources promptly on Face book or Twitter					
FACTOR FIVE Assurance					
The library staff know how the equipment and Web 2.0/3.0 technologies work					
The library staff initiate topical blogs that captivate and encourage me to participate					
The library staff show their familiarity with the subject content through conversations on Face book and Twitter					
The library staff provide expert assistance when the users need it					
The library staff show value for all users information requests by responding to each inquiry					
FACTOR SIX Empathy					
The library provides online information services that interact with users in a courteous manner					
The library provides online information services that interact with users in a respectful manner (e.g., maintaining privacy)					
The library provides online information services that are easy to contact at any time by e-mail or SMS					
The library staff use personalized user profile to alert users on new resources for their research					
The library staff always assure the users that their problem will be handled					

	SD	D	N	A	SA
	1	2	3	4	5
FACTOR SEVEN Communications					
The library staff conduct periodic user surveys on e-service					
The library staff use email or SMS to remind the users due dates for borrowed resources					
The library staff communicate with users effectively through the SMS, Facebook, Twitter or email					
The upcoming library user training programs communicated through email, SMS, Facebook and twitter					
The help functions on the library Web site are effective in resolving problems users encounter in using library e-resources					
FACTOR EIGHT satisfaction					
Facebook and Twitter content is generated and shared on the library web site					
Library web site users use chat sites such as IM to communicate					
Library users access e-mail and share information, pictures etc. from any computer in the library					
Library web sites users use bookmarking tools to collect, organize and share, various types of information content they discover while browsing the web					
The library web site provides resources that empower the user for personal development					

6. Please indicate your degree of **SATISFACTION** with the overall e-services provided by your University library Web Services. Tick [√] in the appropriate box.

Very dissatisfied	Mildly dissatisfied	Neither dissatisfied nor satisfied	Mildly satisfied	Very satisfied

Part C (Please comment of the following statements in relation to how the issues impact on you as a librarian).

7. Face book, Twitter, Wikis, or Blogs may have enabled your users to gain access to essential information for academic purposes. Do you think that these technologies allow users to conduct independent searches, and that they no longer need to depend on the librarians? Explain.

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8. Web 2.0/3.0 technologies (Facebook, Twitter, Wikis, or Blogs) offer library users alternative approaches to gather and access information compared to traditional ways (controlled vocabulary) which required users to use standard search terms in order to access relevant information. Explain how these technologies have influenced the way your users now find and collect information.

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9. Web 2.0/3.0 technologies may be perceived as eroding the authority of librarians and the power of the library as the only relevant (bona fide) providers of academic information. Explain.

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Thank you very much for your time.

APPENDIX F

QUESTIONNAIRE FOR POSTGRADUATE STUDENTS

This is a questionnaire intended for postgraduate students of a Higher Education Iinstitution:

University. Kindly complete all the parts.

The questionnaire comprises three parts (A to C)

Part A -a set of 8 statements including personal data and personal use of Web 2.0/3.0 technologies

Part B -a set of 40 statements on your assessment of the quality of e-services delivered in your

university library, compared with the quality of e-service in an ideal university library, and 1

statement on overall service satisfaction

Part C - three critical theory-based open-ended questions

Part A

1. For which degree course are you registered? Tick [√] in the appropriate box.

Honours	Masters	Doctoral

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2. How often do you visit the library Web site? Tick [√] in the appropriate box.

DAILY	WEEKLY	MONTHLY	SELDOM

3. How did you find out that your library has Web 2.0/3.0 tools (Facebook, Twitter, Wiki, RSS, Blogs)? Tick [√] in the appropriate box.

During library training	
During a special workshop	
The reference librarian told me	
Accidentally	

4. Which of the following Web 2.0/3.0 tools have you used from the library Web site? Tick [√] all that apply.

Facebook	
RSS	
Twitter	
YouTube	

5. Which of the Web 2.0/3.0 tools do you use outside the library? Tick [√] all that apply.

Facebook	
RSS	
Twitter	
YouTube	

6. Do you enjoy seeing your contribution opinions appear on any social networking sites? Tick [√] one.

Yes	
No	

If yes, explain why?

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If no, explain why not?

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Part B

7. This section of the questionnaire contains 40 statements relating to the delivery of technology-driven services in your university library, and 1 statement on overall satisfaction. Use the ranking schema below to indicate your assessment. Tick [√] in the appropriate box for each statement.

SD=Strongly Disagree   **[1]**
D=Disagree   **[2]**
N=Neutral   **[3]**
A=Agree   **[4]**
SA=Strongly Agree   **[5]**

SYSTEM QUALITY					
FACTOR ONE Customization	**SD**	**D**	**N**	**A**	**SA**
	1	**2**	**3**	**4**	**5**
The library Web site assists me in personalizing the use of web 2.0/3.0 sites such as Face book or Twitter					
The library Web Site offers help that guides me in personalizing the use of online databases					
The library Web site provides online enquiry forms that are easy to contact use at any time					
The library Web site utilizes colours, backgrounds, fonts, icons, images, text size, and layout that are easy to view					
The library Web site has well-structured menus that help me understand how the information/content is organized					
FACTOR TWO Ease of Use					
The library Web site gives me pointers to useful resources					
The links on the library Web site are useful for discovering information sources					
The headings and labels on each page are used consistently					
The library provides computers with e-mail, Twitter and Face book links which improve ease of use					
It is easy to return to the library Web after using other Web 2.0/3.0 sites					
SERVICE QUALITY					
FACTOR THREE Reliability					
The library staff make relevant information available using Web 2.0/3.0 technologies such as Face book and Twitter					
The library staff responds to online reference questions promptly					
The online catalogue is a comprehensive source of information about all materials in the library's electronic collections, including links to SNS's					
The library staff provides the correct answers to reference questions					
The library Web site is kept current through regular updating of its content					

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FACTOR FOUR Responsiveness	SD	D	N	A	SA
	1	2	3	4	5
The library staff communicates with me effectively through Internet chats, text messaging etc.					
The library Web site periodically prompts me to provide feedback on service satisfaction					
I use the library Web site to interact with library staff					
The library regularly shares news and other information through Face book, and Twitter					
The library delivers information on new journals and other resources promptly on Face book or Twitter					
FACTOR FIVE Assurance					
The library staff know how the equipment and Web 2.0/3.0 technologies work					
The library staff initiate topical blogs that captivate and encourage me to participate					
The library staff show their familiarity with the subject content through conversations on Face book and Twitter					
The library staff provide expert assistance when I need it					
The library staff show value for all users information requests by responding to each inquiry					
FACTOR SIX Empathy					
The library provides online information services that interact with me in a courteous manner					
The library provides online information services that interact with me in a respectful manner (e.g., maintaining privacy)					
The library staff can be easily contacted using email or SMS					
The library staff use my personalized user profile to alert me on new resources for my research					
The library staff always assure the users that their problem will be handled					
FACTOR SEVEN Communications					
The library conducts periodic user surveys on e-service					
The library uses email or SMS to remind me the due dates for borrowed resources					
The library communicates with me effectively through the SMS, Face book, Twitter or email					
The upcoming library user training programs communicated through email, SMS, Facebook and twitter					
The help functions on the library Web site are effective in resolving problems I encounter in using library e-resources					

FACTOR EIGHT Satisfaction	SD	D	N	A	SA
	1	2	3	4	5
Facebook and Twitter content is generated and shared on the library web site					
Library web site users use chat sites such as IM to communicate					
Library users access e-mail and share information, pictures etc. from any computer in the library					
Library web sites users use bookmarking tools to collect, organize and share, various types of information content they discover while browsing the web					
The library web site provides resources that empower me for personal development					

8. Please indicate your degree of **SATISFACTION** with the overall e-services provided by your University library. Tick [√] one.

Very dissatisfied	Mildly dissatisfied	Neither dissatisfied nor satisfied	Mildly satisfied	Very satisfied

Part C

(**Please comment of the following statements in relation to how the issues impact on you as a library user).**

9**.** Face book, Twitter, Wikis, or Blogs may have enabled you to gain access to essential information for academic purposes. Do you think that these technologies allow you to conduct independent searches, and that you no longer need to depend on the librarians? Explain.

_____

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10. Web 2.0/3.0 technologies (Facebook, Twitter, Wikis, or Blogs) offer you alternative approaches to access and gather information compared with the traditional ways such as using database specified search terms or keywords, etc. Explain how these technologies have influenced the way you now find and collect information.

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11. Web 2.0/3.0 technologies may be perceived as eroding the authority of librarians and the power of the library as the only relevant (bona fide) providers of authoritative information. Explain whether and why you agree or disagree.

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Thank you very much for your time.