

# Conceptions and misconceptions of theoretical frameworks in Library and Information Science Research<sup>1</sup>

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## Abstract

We have noted that both novice (postgraduate Masters and Doctoral students) and established Library and Information Science (LIS) researchers battle with the understanding, interpretation and selection of appropriate theoretical frameworks (TFs) to inform their research. Therefore we try in this paper to provide an epistemological understanding of theoretical frameworks through the historical analysis of literature and the content analysis of selected Masters and Doctoral LIS research reports conducted in selected universities in Eastern and Southern Africa. We also use our own experience in supervising postgraduate research work in LIS. The paper is divided into four sections: i) Conceptualizing theoretical frameworks; ii) Discussing theoretical frameworks through a historical analysis; iii) Analysis of selected Masters and Doctoral research reports in order to establish the nature and types of theoretical research paradigms; and iv) Discussing challenges and opportunities before providing conclusions.

**Keywords:** Theoretical frameworks, research theory, library science theory, information science theory.

## 1. Introduction

The aim of this paper is to examine the conceptions and misconceptions that exist with respect to the theoretical frameworks that inform Library and Information Science (LIS) research. The conception that Library and Information Science has a theoretical framework that is unique to its subject field is largely a misconception. Neither library nor library and information Science possesses a subject unique theoretical framework. It generally make use of research frameworks and models derived from other disciplines.

Broadly speaking, a theoretical framework refers to that part of a research proposal or study that sets out to describe the research question (hypothesis) and the line of inquiry and methodology used to answer it. A theoretical framework thus refers to the agenda, outline, and theoretical construct of a research approach and normally precedes the literature review.

The theoretical framework of a study is thus the structure that holds and supports the theory of a research work. It serves as the lens that a researcher uses to examine a particular aspect of his or her subject field. In other words, it elucidates or explains the rationale, justification or basis of the study (Khan, n.d.). The nature and function of a theoretical framework can be seen as an attempt to answer two basic questions: 1) What is the problem that you (as the researcher) set out to investigate and answer? 2) Why is your specific approach a realistic or feasible solution to the problem? The answers to these questions normally stem from the use of a number of sources which are outlined or discussed in a literature review and which therefore form a critical part of one's research proposal or study and theoretical framework (Ziedler, 2007).

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Perhaps one of the most informative sources on the design and composition of a theoretical framework is offered by Paul Leedy. In his paper, "Practical Research: Planning and Design", Leedy (1974) compares a theoretical framework to drawing and designing an architectural structure prior to construction. Successful research, he points out, is only possible after carefully planning and conceptualizing the research objective(s) of the study. Thus all planning for research begins with an understanding of the manner in which knowledge is discovered. According to Leedy, there are only two ways to discover knowledge: through deductive logic, and through inductive reasoning, or what is today referred to as the scientific method (Leedy, 1989:79).

Until the European Renaissance or "rebirth" initiated in the 14<sup>th</sup> century, the main method or manner in which knowledge was sought and discovered was by means of deductive reasoning or logic. This method is largely associated with the Greek philosopher Aristotle who lived from 384 – 322 BC. It was extensively used by the French Philosopher and mathematician René Descartes in the 16<sup>th</sup> century, who argued that, "If you would be a real seeker after truth, you must at least once in your life doubt, as far as possible, all things" (Mulder, n.d.).

'Deductive logic', as the term indicates, relies on deductive or logical reasoning to gain knowledge. Deductive or logical reasoning thus begins with a major premise or argument (hypothesis) that attempts to show or prove that a logical conclusion essentially follows from a set of premises. The existence or presence of some basic or fundamental truth(s) is therefore assumed, and this is used to arrive at a valid conclusion. Of course this means that the correct results can only be proven or confirmed if the original premise or argument (hypothesis) is or was correct to begin with. Deductive arguments can thus be valid or invalid, sound or unsound, but never true or false. Thus in terms of deductive logic, it can be argued that all men are mortal, Aristotle is a man, therefore Aristotle is mortal.

Leedy (1989:80) advances the following example of deductive reasoning: "The terror that gripped Columbus's sailors was a fear supported by deductive logic. To them, the earth was flat. That was their major premise. Then they began reasoning. If the earth were flat, then the flat surfaces would have boundaries. The boundaries of flat surfaces would be the edges of those surfaces. If a ship passed across a flat surface, it would come to the edge of it. There, they reasoned, it would fall off. At this point, they advanced a second premise namely that earth is afloat on Chaos. Those who travel to the edge of the earth will fall into Chaos and be forever lost! **Q.E.D**<sup>2</sup>"

The problem with this approach is that while it can be argued that the logic was sound, the reasoning accurate and the conclusion valid, the entire premise or argument on which they were based was wrong or false.

Inductive reasoning or the scientific method of knowledge discovery on the other hand, had its origins in the period of the Renaissance. Inductive reasoning or the scientific research method, unlike deductive reasoning, does not start with a pre-conceived conclusion but with an observation and logic (common sense). As the term suggests, it is "the method that searches or seeks after knowledge" ('*scientia*' = Latin, knowledge, and from '*scira*', Latin, to know). The scientific method gained popularity during the sixteenth century with men such as Leonardo Da Vinci, Copernicus, Galileo and others (Leedy 1989:80).

The scientific method of research is the most valid method for problem solving today. It is based on four basic principles: i) Identify the problem that defines the goal of the quest or search, ii) Gather data with the aim of answering the problem as defined in the research proposal, iii) Develop an hypothesis both as a logical means of locating the data and as an aid to resolving the problem, and iv) Empirically test the

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<sup>2</sup> Q.E.D. is an abbreviation of the Latin phrase '*quod erat demonstrandum*', which means "what was demonstrated".

hypothesis by selecting, processing and interpreting the data to see if the interpretation of them will answer the question that initiated the research (Leedy, 1989:80).

Today all research is based on a combination of these two main research methods or approaches to knowledge – theory is inductive and observation, deductive (Trochim, 2006). Most social research involves both inductive and deductive reasoning processes at some time in the project. Historical research, for instance, is based on the deductive or ‘top-down’ method which works from the more general to the specific. This type of research normally starts with some or other assumption or theoretical question about a topic of interest based on an examination of existing literature. As the research progresses, the original premise or theory is narrowed down into a more specific hypothesis that can be tested. This type of research is normally guided by an extensive review of existing literature on the subject. In other social sciences, such as psychology, sociology and library science, the hypothesis can be further narrowed down through observations and data gathering through quantitative or qualitative sampling techniques. This ultimately leads the researcher to test his hypotheses with specific data, which may or may not confirm the original theory (Trochim, 2006).

Inductive reasoning works the other way round - moving from the specific to the broader or wider generalizations and theories. This is often referred to as the ‘bottom to top’ or bottom up approach. In inductive reasoning, we begin with specific observations and measures and detect or see patterns and regularities, then formulate some tentative hypotheses that can be explored, and finally end by developing general conclusions or theories (Trochim, 2006).

## **2. Elements of a theoretical framework**

According to Gregory Herek (1995:83-93), a theoretical framework should consist of:

1. An explicit statement of the hypothesis or theoretical assumptions on which the research is based and the relevant research method that will guide the researcher in his or her attempt to test the assumption - the why and how of the research. Here the researcher should identify important omissions and limitations, such as whether undue emphasis is being placed on a particular type of variable or relationship.
2. A clear explanation of how the hypothesis connects the researcher to existing knowledge (the literature review). In other words, to what extent does the research build upon existing research or knowledge (Herek, 1995:83-93)?
3. A clear articulation of the theoretical assumption or supposition on which the research is based; the why and how of the research and how it permits you to move from simply describing a phenomenon to generalizing about various aspects of that phenomenon through observation.
4. A comprehensive explanation of the research method (type of research<sup>3</sup>) to be used and how it proceeds from a theoretical hypothesis or theory to an empirical hypothesis or theory.

Having a theory helps you identify the limits of those generalizations. A theoretical framework thus specifies which key variables influence a phenomenon of interest. It alerts you to examine how those key variables may or may not differ and under what circumstances. It thus helps to define the scope of the study (USC LibGuide, 2011).

These basic elements of a theoretical framework are thus fundamental to any deductive or inductive study (Borgatti, 1999).

By virtue of its application, good theory in the social sciences is of value precisely because it fulfils one primary purpose: to explain the meaning, nature, and challenges of a phenomenon, often experienced but

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<sup>3</sup> There are basically six types of research: basic, applied, exploratory, confirmatory, quantitative and qualitative.

unexplained in the world in which we live, so that we may use that knowledge and understanding to act in more informed and effective ways.

### **3. Towards a theoretical framework for Library and Information Science**

So what exactly constitute a theoretical framework for Library and Information Science? There is no simple answer to this complex question. The uneasy marriage between library science and information science in the last quarter of the twentieth century has led to an identity crisis in Library and Information Science (LIS) research. Andrew Dillon (Dillon 2007), Professor and Dean of the School of Information at the University of Texas, underlined this in his keynote address to the Sixth International Conference on “Conceptions of Library and Information Science (LIS)” in 2007, when he stated that while, “Library and Information Science (LIS) research and schools are no longer new, one might think otherwise when one reads the ongoing debates about the field’s purpose and value”. Much of the debate appears to be between library and information scientists and the older leaders of the profession who accuse LIS schools of “engaging in esoteric and irrelevant research that was out of touch with real world needs” rather than educating students appropriately for the workplace (Dillon, 2007).

The second half of the 20<sup>th</sup> century witnessed a rapid growth in library science. The practical approach to library education, advocated by Melvin Dewey, acted as the foundation of library school programs around the world. According to Oslar et al.. (1995:21), Dewey’s technical education model largely defined the direction of library science education in the United States for more than a hundred years. This was also the case for most European and South African universities. Until the arrival of the internet in the 1970s, there was a clear distinction between what was considered library science and what fell under information science.

By the end of the decade, everything had dramatically changed. In the US, almost one-third of the LIS programs in the US had been closed down. In many other cases the word ‘library’ was excluded from the name of the program. Today, one-third of the currently accredited graduate programs in librarianship in North America alone are offered in schools whose names contain the terms ‘information’ or ‘information studies’ (Dillon, 2007). Library science teaching and training in South Africa has followed a similar path, blurring the distinction between library science and information science, and this has had an impact on curriculum design and content.

According to Spink (Spink, 2000:73), information science seeks to understand the complex process that involves information related research activities such as: “Human information seeking and retrieving behaviours; organization of a collection of texts, images, sounds or multimedia, that bear some cognitive content; an intellectual representation of such texts, whether it is derived by humans directly or indirectly; intellectual ways and means of searching and retrieval by users; and the system [technologies] and techniques to accomplish this.”

He went on to state that: “The complexity of human information seeking and retrieving is derived not only from these very difficult processes, but from the direct involvement of human generators and users of texts in information systems, bringing in cognitive, affective, social and situational (problem, task) variables” (Spink, 2007:73).

According to Kuhlthau (2007), the twenty-first century introduced new challenges to researchers and practitioners as the world moved away from concentration on the “technology of searching” to the “use of information for problem solving and creativity” in the workplace and our daily lives. This type of research is both quantitative (related to or measured by quantity) and qualitative (related to or measured by quality) and thus mainly inductive or scientific in nature.

#### 4. Theories defining theoretical frameworks for LIS research

The marriage (or forced relationship; see Dillon, 2007) between the practical (people-orientated) and theoretical (technological-orientated) fields of library science and information science has led to the use of diverse theoretical models in LIS research, ranging from a semiotics approach (viewing information and the concept of information as sign), to an pure information approach to theories such as the **Diffusion of Innovations theory** (DoI) developed by Everett Rogers in 1957<sup>4</sup> and Moore's **Strategic Triangle Model**. Developed by Mark Moore of the Harvard Business School in the early 1990s as an adaptive strategy framework that managers of public and non-profit executives can use to continuously position and reposition their organizations in a changing environment).

Other models used as theoretical models in LIS research design include: the Situated Logic model; the Common Outcome Framework model; and the Lay Information Mediary Behaviour (LIMB) model used by Samantha Becker S, Crandall M.D., et.al( see Bekker 2010).

The reliance by Library and Information Science (LIS) research on other disciplines for its theoretical research models was highlighted by Sydney Pierce in an article published in American Libraries in September 1992 entitled, "Dead Germans and the Theory of Librarianship" (Pierce, 1992:641-643). In this she argues that Library and Information Science (LIS), unlike other disciplines that do not accept theories that are grounded in the intellectual traditions of other fields, is quite happy to import theories from other disciplines such as communications, sociology, education, management and linguistics. What then, she asks, is our unique contribution to the theory of knowledge? Is there a common theory and history guiding LIS research? Is there a unifying theoretical model and an intellectual history beyond Dewey's model of technical education and if so, why do PhD students in LIS have to use theories and models developed by other disciplines (Pierce, 1992:641-643)?

Her answer is that Library and Information Science (LIS), unlike other disciplines, has no "dead Germans". Disciplines such as history, sociology and psychology are grounded in theories of "dead Germans" like Karl Marx, Max Webber, Sigmund Freud, Hegel and others. Library and Information Science, with the exception of Dewey perhaps, appears to have none. According to Pierce (1992:641-643), library scientists appear to talk about theory without recognising it for what it is: "Theory is not dry abstraction but the body of concerns, methods and research problems a discipline develops over time." Clearly Library and Information Science appears to lack a common history and thus a common body of theory guiding and shaping the intellectual traditions of the subject field and its research.

Library and Information Science (LIS) researchers thus live in a kind of "intellectual ghetto with its most talented researchers seeking favour by imitating practices of disciplines considered superior to its own" (Pierce, 1992:641-643).

#### 5. Contextualisation

The understanding, guidance and execution of a theoretical framework in research is problematic to many novice researchers and even established researchers. University postgraduate students at both Masters

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<sup>4</sup>. Rogers is widely known as the inventor of the "**Diffusion of Innovations**" theory for his research on how farmers adopt agricultural innovations. After pursuing a degree in agriculture, Rogers earned his PhD in Sociology and Statistics at Iowa State University (1957). His Doctorate work stemmed from both his personal interest in understanding why farmers in Iowa, including his father, resisted using new inventions in their fields such as high-yielding hybrid seed corns, chemical fertilizers and weed sprays as well as how these new applications diffuse among farmers over time. Rogers reviewed the existing studies on diffusion of innovations from educational, medical and marketing domains and found considerable similarities among these different disciplines. He published his findings in his book, "Diffusion of Innovations" in 1962. Rogers, Everett M. (1962). *Diffusion of Innovations*. Glencoe: Free Press.

and Doctoral levels in many universities that we are familiar with in Africa find theoretical framework identification, conceptualization and application in their studies quite daunting, and misconceptions of theoretical frameworks arise from time to time. For example, can there be a Masters or Doctoral research study without a theoretical framework or part of it? Must the word or phrase ‘theoretical framework’ be mentioned in a thesis or dissertation for it to exist or be there? Are there cases in which a thesis/dissertation does not have a theoretical framework?

In order to establish how this occurs in reality we have, through a content analysis of sixty-seven (67) Masters dissertations and eighteen (18) Doctoral theses (most of which we have either supervised or examined from 12 universities in Eastern and Southern Africa since 1996), captured information on several relevant variables. For general information on the theses/ dissertations, we captured data on the thesis or dissertation’s title; type - whether Masters or Doctoral; author/ name of researcher; supervisor(s); affiliation; and the date completed. In the next section, we focused on information relating to the theoretical framework. Data was thus collected on whether or not there is mention of ‘theoretical framework’ in the thesis or dissertation, and whether TF appears on its own, as a chapter, or part of another chapter. If part of another chapter, we asked in which chapter; the title or name of the theoretical frameworks or models applied in the thesis/ dissertation; a short description of the TF or model(s); and a list of references for the TF. We also captured data on the research method and research instruments used in the studies. The analysis was conducted on theses and dissertations from the following 12 universities: University of Botswana, 4 M (Masters) and 2 D (Doctoral/ PhD); University of Zululand, 6 M and 5 D; Moi University, 44 M and 3 D; University of South Africa, 1 M and 2 D; University of Limpopo, 2 M and 2 D; University of Western Cape, 1 M and 1 D; University of KwaZulu Natal, 7 M; University of Cape Town, 3 M; Cape Peninsula University of Technology, 1 M; University of Pretoria, 3 M; Makerere University, 1M; and University of Namibia, 2 D.

**Table 1: List of universities, M&Ds and year/ date of completion**

University	Masters	Doctoral	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	TOTAL
Botswana	4	2							M	M	M						D,M	D	6
Zululand	6	5		M				M	M		2D, M		D	2D		M	M		11
Moi	44	3	4M	M	2M	M	M	7M	3M	M	M	M	2M	4M	2D, 5M	M	D,1 0M		47
Namibia		2													D		D		2
UNISA	1	2								M				D	D				

Limpopo	2	2												D,M	M	D			4
Makerere	1																		1
UWC	1	1			D											M			2
UKZN	7				M	2M							M		M	M	M		7
UCT	3														M	M			3
University of	1											M							1
UP	3								M	M		M							3

Reference to theoretical frameworks appeared in 71 (60 %) theses and dissertations, with 100 % in Doctoral theses. We recognise that TF would be in all theses/dissertations where a literature review of any kind exists. All theses/dissertations analyzed were informed by a literature review that in itself is a theoretical framework. However, there is a tendency in a number of Masters and Doctoral theses and dissertations to provide a separate section within a chapter, or in a chapter of its own, dedicated to the theoretical framework. In such cases, the TF is normally identified and discussed in some detail.

We have observed in the process of supervising or examining theses and dissertations that the TF would either be located at the beginning of the dissertation or thesis in chapter one, in the literature review chapter(s), in the research method and methodology chapter, or in its own chapter. The latter is common practice in Doctoral theses. Obviously, the location or spread of the TF in a thesis or dissertation depends on the research paradigm or approach. Thus, the three research paradigms – qualitative, quantitative or mixed (Q+Q) - would vary the location of the TF. Similarly, the type of discipline - humanities and social sciences or natural and applied sciences - may influence decisions on the handling of the TF. During this analysis, in 47 (40.4 %) cases, TF was accommodated within the literature review as a sub-topic, normally placed at the beginning of the chapter. We further assumed that the TF was also implied in the 17 (of 86) cases where it was not mentioned or listed as a sub-topic. The theoretical framework appeared in its own chapter in 13 cases, all of them (72 %) in Doctoral dissertations, meaning more emphasis is placed on a separate TF for

doctoral theses by supervisors than for Masters theses. Emphasis on the visibility of the TF, however, varies from university to university and supervisor to supervisor, depending on academic or scholarly backgrounds in the latter.

Postgraduate students in LIS or knowledge management schools panic when the time comes to identify appropriate theoretical frameworks for their research. We attempted to identify the theoretical frameworks used in the various studies and tried to cluster them by research themes (e.g. social informatics), as represented in Table 2.

**Table 2: Some Theoretical framework models used in LIS research**

None/unknown	17	Integration of Technology; International Council on Archives (ICA) (1997),Guidelines on Disaster Prevention and Control in Archives Model;	1
Diffusion of innovation theory;	7	International research on permanent authentic records in electronic systems (interPARES);	1
Records continuum model/concept;	5	Interpretative social paradigm framework, The;	1
Records life-cycle model;	5	Knowledge society;	1
Wilson's general model of information behaviour;	4	Kuhlthau's model of the Information Search Process (ISP);	1
Ranganathan's five laws of library science;	4	Lasswell's models of communication;	1
Systems Theory;	4	Laura Millar (1999) Emergency Planning for Records and Archives Services Model	1
Theory of Reasoned Action;	3	Lawrence and Lorsch model;	1
Actor-Network Theory (ANT);	3	Learning society;	1
Communication theory;	3	Leckie's model of professional groups information seeking;	1
Virtue Based Theory;	2	Metcalf Theory;	1
Wilbur Schramm's second model of communication;	2	National Archives of Australia digital record-keeping guideline 2004.	1
De Fleur's Communication Model;	2	Network literacy;	1
Health Belief Model (HBM);	2	New Public Management;	1
Information Theory of Communication;	2	Noruzi's Five Laws of the Web;	1
Information theory;	2	One-way communication models;	1
Integrated records management model;	2	Participatory / Empowerment Model;	1
Learning theory;	2	Participatory communication models;	1
Technology Acceptance Model;	2	Problem-Based Learning (PBL);	1
Theory of Planned Behaviour;	2	Radical Structuralism;	1
Adopter Based Instrumentalist Theory;	1	Rational Decision-Making theory;	1
Audience participation;	1	Resource-based learning approach;	1
Berlo's communication model;	1	Resource-Based Theory;	1
Bibliometrics/Informetrics, D&E theories	1	Resource-Dependence Theory;	1
Burns and Stalker model;	1	Rights Based Theories;	1
Cognitive Psychology Theory;	1	Robert Darton's Communication Circuit;	1
Communication of Innovation theory;	1	Role Behaviour Perspective;	1
Computer Self-Efficacy (CSE);	1	Scheme theory;	1
Consequence Based Theory;	1	Sens Theory on Entitlement and Capabilities;	1
Contemporary themes and Concept of conservation;	1	Service marketing model;	1
Contingency approach theory;	1	Social Cognitive Learning Theory;	1
De Fleur's information communication theory;	1	Social marketing approach;	1
Decision theory;	1	Social system theory;	1
Delone and Mclean Information System Success Model;	1	Socio-Technical Systems Theory (STST);	1
Design and implementation of records-keeping systems (DIRKS) model;	1	State Records of South Australia (2007), Records Management Disaster Planning Model;	1
Deterministic theory/heroic;	1	Systems development life cycle (SDLC);	1
Development support communication model;	1	Task Person Technology Fit (TPTF);	1
Disaster Crunch Model;	1	Task-Technology Fit (TTF);	1
Duty Based Theory	1	Theory of Constructivism;	1
Ethical Theories;	1	Theory of Defleur's improved communication theory	1



	of 1970;	
Feminism Theories;	1 Theory of education;	1
Grounded theory Framework;	1 Theory of information seeking;	1
Historical and Conflict Theory;	1 Theory of library and information sciences;	1
Human Capital Theory;	1 Thomas Adams and Nicholas Baker's 'new model for the study of the book';	1
ICT diffusion model;	1 Thompson's Five Laws of Librarianship;	1
Individualistic/great man theory;	1 Transfer and use of ICT innovations;	1
Info-Mobilisation;	1 Tsakona's model on the interaction of users with the digital environment;	1
Information communication theory;	1 USA Regional Vital Records Workgroup (2003), Developing and Maintaining Vital Records Program Model;	1
Institutional Theory;	1 Usher's theory of innovation;	1
Integrated model of effect hierarchies;	1 Victorian electronic records strategy (VERS);	1
Integrated risk management model (IRMM);	1 Emergency Planning for Records, and Archives Services Model;	1

Notably, there were several cases (17) where no specific theoretical framework was ever mentioned in the dissertation. Based on the definition of a theoretical framework (see 1 & 2 above), this does not mean that the dissertation or thesis lacked a theoretical framework. Studies (e.g. Dillon, 2007; Peirce, 1992) confirm that LIS research over relies on non LIS theories. In this particular case (expectedly) most of the borrowed theories were from humanities and social sciences such as psychology, development studies, management, cultural studies, education, political science and public administration, and ethics. Computer science also made a significant contribution. Within LIS or closely linked to it were theories from archives and records management, social informatics, information seeking, computer science, and librarianship (e.g. Ranganathan's laws). Ranking the theories by frequency of occurrence places the Diffusion of Innovations theory (DoI), also sometimes called Rogers theory (see Minishi-Majanja and Kiplang'at, 2005), at the top of this list. As discussed by the two authors, DoI is a theory widely used to explain the relationship between humans and technology, particularly in research fields such social and community informatics or ICT for development. The Records Continuum model or concept and Records Life-Cycle are widely used in archives and records management research, while Wilson's general model of information seeking (see Ikoja Odongo and Mostert, 2006) is popular with user, information needs and information seeking behaviour related research. Several studies used the Systems theory (What is Systems Theory<sup>5</sup>) as well.

## Conclusions

At the beginning of this paper we asked whether library science has a subject- or discipline-specific theoretical framework and thus a specific research methodology applicable to it. Our preliminary research shows that neither library science nor Information science has a recognisable discipline-specific research framework or model. As pointed out in the first half of the paper and confirmed by the analysis of completed Masters and Doctoral research undertaken by students at 12 Eastern and Southern African universities, LIS research is based primarily on research theories developed and used in neighbouring disciplines, mostly from the humanities, social sciences and computer science. Does this necessarily mean that library and information is a lesser science than the sciences whose theoretical research frameworks and methodologies it uses to conduct its research? The answer is no. In fact, as a discipline it covers virtually all areas of human knowledge – from the social sciences to the applied sciences, and even the natural sciences. It can therefore be argued that because library and information scientists provide an essential service to all disciplines, and because informatics (interaction between human and technology) plays an increasingly important role in the

<sup>5</sup> [http://en.wikipedia.org/wiki/Systems\\_theory](http://en.wikipedia.org/wiki/Systems_theory)

provision of such services, it is only logical to assume that multi-disciplinary research frameworks and models will be used to facilitate LIS research.

In the second set of questions we asked: Can there be a Masters or Doctoral research study without a theoretical framework or part of it? Must the word or phrase 'theoretical framework' be mentioned in a thesis or dissertation in order for it to exist or be there? Are there cases when a thesis or dissertation does not have a theoretical framework or conceptual framework?. Some answers to this have been provided in Sections 1 and 2 of this paper in the conceptualisation and contextualization of TFs. There it is mentioned that pointers to TF can be found in the research proposal, inductive and deductive reasoning, method and methodology, hypothesis, literature review, theoretical explanations, etc., and these could also pinpoint where misconceptions occur

We are yet to complete the subject analysis of the Thesis & Dissertations (T&D) included in this study as well as the research methods and instruments that inform a TF. It would also be preferable to increase the samples of T&Ds from more universities for more comprehensive analysis.

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