

The Use of a Constructivist Grounded Theory Method to Explore the Role of Socially-Constructed Metadata (Web 2.0) Approaches

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Abstract

Purpose –This paper provides rationale for using a constructivist grounded theory method for PhD research in Library and Information Research, entitled “Towards a Theory of Digital Library Metadata: The emergence of Enriching and Filtering”. It highlights on the processes of data collection using intensive interviewing and three stages of data analysis, namely: open coding, focused coding and theoretical coding. In addition, the processes of constructivist grounded theory conceptualisation using memo writing and theoretical saturation are highlighted.

Design/methodology/approach –While the actual results of the PhD study will be presented separately, this paper mainly focuses on the best practises and lessons learnt from the adoption of the method. The paper highlights on how the method enabled the researcher to conduct iterative scrutiny of the concepts and categories through the method’s memo writing and conceptualisation processes four core categories have emerged. It is argued that a constructivist grounded theory approach is fitting to address issues in relation to Web 2.0 and user-driven metadata approaches.

Findings –Following a rigorous application of the method, a constructivist grounded theory method is considered appropriate to explore emerging areas of research in library and information science. It is indicated that the novelty of the use of web 2.0 and social media in libraries, the issue of socially-constructed metadata approaches is relatively under-developed and thus there are absence of extant theories, suggesting thus the importance of inductive research methods, such as the constructivist grounded theory method presented in this paper. Taking into account, the potential existence of diversity of views among librarians, LIS researchers, metadata experts and library users with respect of the issues of involving users in metadata creation, from the three approaches to grounded theory, Charmaz’s (Charmaz, 2006) constructivist approach was considered fitting.

Practical implications –The case for the viability of the constructivist grounded theory method for high level research such as PhD, is made. It is believed that LIS researchers who aim to undertake a research on emerging topical issues, such as Web 2.0, would find the method appropriate. The method allows two-way mutual co-constructions of

concepts between the researcher and research participant. It also provides the researcher flexibility and rigour to gather views and opinions, through interactive and iterative in-depth interviews. It also allows the researcher to analyse and interpret the perspectives of participants' through identification of concepts and categories from the data collected. Finally, the method is expected to help to develop a theory that overarches the concepts and categories derived from the data collected.

Originality/value –From the three approaches to grounded theory, the constructivist grounded theory approach, as has been demonstrated in a PhD research, reckoned the most appropriate methodology, given the social-constructivist (interpretive) philosophical perspective assumed in this research. It is also a fitting methodology for emerging research areas that are characterised by scant or non-availability of well-developed theories.

Keywords: grounded theory, constructivist grounded theory method, metadata, metadata standards, socially-constructed metadata, Web 2.0

1. Introduction

Several methodologies can be deployed in either theory testing (deductive) or theory building (inductive) research. Grounded theory is one such methodology, frequently employed, in theory building (Charmaz, 2006; Glaser & Strauss, 1967; Strauss & Corbin, 1998). As it does not test an existing theory, data collection begins at an early stage, without any need for reference to other theories (Glaser, 1978a; Glaser & Strauss, 1967). Whilst the research process in a deductive approach progresses in a linear fashion, from defining the research problem and hypothesis formulation to reviewing related literature, collecting data, analysing it, and testing hypothesis, and culminates with the derivation of conclusions and recommendations, an inductive approach aims to develop a new theory. In many respects, grounded theory methodology works in a reverse manner from that of the scientific method (Allan, 2003; Allan, 2007; Charmaz, 2006; Clarke, 2005; Glaser, 1978b; Glaser & Strauss, 1967; Lehmann, 2010; Scott, 2007). Whilst hypothesis-based research is deemed appropriate in well-established domains (Pawar, 2009), where extant theories are well developed, it is argued that in the sphere of socially-constructed metadata is an emergent one, with few or no developed theories, wherein the grounded theory method is appropriate (Alemu, Stevens, & Ross, 2012; Alemu, Stevens, Ross, & Chandler, 2012a, 2012b).

Whilst there exist three approaches to conducting grounded theory (Glaserian, Glaser, 1978; Straussian, Strauss and Corbin, 1998; and Charmaz's, Charmaz, 2006), there is little research on which of these approaches is pertinent to the field of Library and Information Science, especially in relation to collecting and analysing qualitative data that reflects diverse perspectives. After careful analysis of the three approaches (flavours), this thesis purposefully chose to adopt the constructivist grounded theory method, as proposed by Charmaz's (2006). The choice of the method is in line with the adoption of the interpretive paradigm in this study (Alemu, Stevens, & Ross, 2012; Alemu, Stevens, et al., 2012b). It is argued that, in an interpretive research paradigm, the researcher and participants co-construct meaning, rather than trying to objectively verify an existing hypothesis (Charmaz, 2006; Mills, Bonner, & Francis, 2006).

This paper makes a case for the use of a constructivist grounded theory method for qualitative research in digital libraries, with emphasis on its pertinence to analyse emerging issues such as Web 2.0 and socially-constructed (user-generated) metadata approaches. The paper presents experiences and insight gained from completing a PhD research entitled “Towards a Theory of Digital Library Metadata: The emergence of Enriching and Filtering”, using Charmaz’s (2006) Constructivist Grounded Theory method. In the study, three stages of analysis, namely, Open Coding, Focused Coding and Theoretical Coding, were designed and executed. The paper also presents underlying rationale behind the choice of in-depth interviewing technique, memo writing, and theoretical saturation. The importance of using computer assisted qualitative data analysis software is described. In addition, following Charmaz (2006), criteria for grounded theory research evaluation is presented. Finally, the paper concludes by recommending the adoption of the constructivist grounded theory approach for new and emerging areas of research in LIS where there are scant or no theories.

2. What is Grounded Theory Method?

Grounded theory is an inductive research method, predominantly used for qualitative research. Being an inductive method, grounded theory develops theory from empirical data (Allan, 2003; Charmaz, 2006; Glaser & Strauss, 1967; Lehmann, 2010; Mills et al., 2006; Strauss & Corbin, 1990). The grounded theory method was first developed by Barney Glaser and Anselm Strauss in 1967 (Glaser & Strauss, 1967). It was initially devised for the domains of medical sociology and health research (Charmaz, 2006; Glaser & Strauss, 1967; Strauss & Corbin, 1998). Through the years, the use of the method has slowly spread to other spheres, including information systems (Lehmann, 2010). Grounded theory is seen as a fitting method for emergent research areas, as it helps in developing conceptual foundations that are grounded in data. Allan (2007) maintains that grounded theory provides for a systematic and rigorous analysis of a phenomenon or a problem. Grounded theory incorporates proven principles and procedures, such as use of open coding, constant comparison, memo writing, theoretical coding and theoretical saturation (Allan, 2007; Charmaz, 2006). The method can also be used for conceptualising real-world problems and phenomena. The main tenet of the method is the process of iterative conceptualisation, rather than description (Bryant & Charmaz, 2007a; Glaser, 2001; Glaser, 1978b; Strauss & Corbin, 1998). Whilst the method is considered appropriate to collect and systematically analyse various types of data, it is well suited for the conduct of qualitative research (Charmaz, 2006). The basic tenet of the methodology is the process of developing a theory that is grounded in data through simultaneous data collection and analysis techniques (Bryant & Charmaz, 2007a)

According to Strauss and Corbin (1998, p.7) the defining characteristics of grounded theory include critical analysis, conceptual abstraction, openness to emerging ideas, and reliance on empirical. Similar characteristics of the methodology include avoidance of preconceived theories and pre-formulated

hypothesis, as well as reflective and critical analysis of situations and contexts in any given research problem or phenomenon (Charmaz, 2006; Strauss & Corbin, 1998). Several cases of its application for research in information science are found in the literature (Allan, 2007; Bryant & Charmaz, 2007a; Dunn, 2011; Lehmann, 2010; Mansourian, 2006; Nguyen, Partridge, & Edwards, 2012; Scott, 2007; Urquhart 2001; Urquhart & Fernandez, 2006; Urquhart, Lehmann, & Myers, 2010).

One of the main advantages of the grounded theory method is that the theory developed from data in a particular area of study (substantive theory) can help explain problems in other domains (general theory). For instance, a theory that explains users' satisfaction in library services can be employed to elucidate the phenomena in other spheres, outside of the library domain. As Allan (2007, p. 9) points out "the methodology consists of a systematic framework that, when followed, provides techniques for data analysis that are repeatable, generalisable and more rigorous than most qualitative research methods. Grounded theory, although classified as a qualitative research method, has certain processes that are lacking in other similar methods and, hence, could be considered to be the first in a new genre of research methodologies that can be used for conceptualizing underlying causal issues, rather than merely describing them." Currently, there are three main approaches that can be pursued in the implementation of grounded theory method.

2.1. Glaserian Grounded Theory

The first approach, known as the Glaserian (after the originator), compels the researcher to postpone the process of literature review until such time that data analysis has been completed and a theory has been generated. The Glaser is often considered as a pioneer grounded theorist and he espouses the view that the researcher should keep distance in the research process, so as not to introduce any biases and preconceived ideas into the research.

According to Allan (Allan, 2003) coding helps to differentiate the substantive from the noise in any given mass of data. The main purpose of coding is conceptualisation, which, according to Glaser (2001), is the process of abstraction of the data from time, place and people so as to be able to move beyond mere description to the identification of themes that are of value in investigating an underlying phenomenon. For Glaser (2001, pp. 4) "[grounded theory] comes from data, but does not describe the data from which it emerges," and "[grounded theory] does not generate findings: it generates hypothesis about explaining the behaviour from which it is generated".

Glaser's dictum "all is data" attests that data can be collected from diverse sources: interviews, surveys, and secondary sources. The method supports the use of coding, memo writing, and conceptualisation. As regards to memo writing, Glaser argues that memos lead to "abstraction or ideation" (Glaser, 1978, p.83), as they provide the analyst the freedom to reflect on his/her data.

The Glaserian grounded theory method evaluates the resultant grounded theory for its fit (the categories of the theory should fit the data and not vice versa), work (provides a level of understanding that is acceptable and credible to the

respondents (or some subset of them) and to the inquirer), relevance (it must deal with those constructs, core problems, and processes that have emerged in the situation) and modifiability (open to continuous change to accommodate new information that emerges or new levels of sophistication to which it is possible to rise) (Glaser, 1978b; Glaser & Strauss, 1967; Guba & Lincoln, 1989).

Most grounded theory researchers tended to adopt the Glaserian approach to grounded theory (Allan, 2003; Allan, 2007; Dunn, 2011; Howell, 1996; Lehmann, 2010; Scott, 2007). Over the years, several doctoral studies employing the grounded theory method have been conducted. One such work is that of Helen Scott's (Scott, 2007) doctoral dissertation, entitled "The Temporal Integration of Connected Study into a Structured Life: A Grounded Theory" at the University of Portsmouth. The dissertation dwells upon an important area of research that addresses the social and cultural aspects of online collaborative learning environments. Scott states that she adopted the Glaserian grounded theory approach, which is reflected in how she formulated her research questions. Staying true to Glaser's assertion that the researcher should not specifically define research problems, Scott began her research with two broad research questions: "What are the issues that online learners face and how are these issues resolved?" In addition, again staying true to the Glaserian method, Scott postponed the review of relevant literature until she had completed the data collection and analysis phases. Glaser views literature review as problematic, arguing that it stifles the research process by potentially forcing the data fit extant theories and/or concepts found in existing literature. Scott, concurring with Glaser's views, maintains that "the researcher is enjoined not to read the literature before data analysis, in order to encourage the researcher to be open to the concepts as he or she identifies them" Scott (2007, p.9). Scott states that her choice of the grounded theory method was purely pragmatic. Citing Glaser's opposition to Strauss and Corbin's book, Scott was convinced that the Glaserian approach best addresses her research problems.

Another doctoral researcher who adopted Glaser's version of the grounded theory method was Laurence Dunn, in his dissertation entitled "An Investigation of the Factors Affecting the Lifecycle Costs of COTS-Based Systems" (Dunn, 2011). Dunn employed a triangulated method of both quantitative (statistical) and qualitative data (case study) analysis. Dunn (2011) states that he stayed true to the Glaserian version of grounded theory method with regard to both literature review and analysis. To this end, he prepared two separate reviews of related literature. He also adopted Glaser's coding strategies. In hindsight, he admits that "incorporating the prescriptive aspects of Strauss and Corbin's (1998) grounded theory method into the hybrid method may have been more suitable for dealing with the data analysis. It is now felt that starting with description, before moving to conceptualisation, would have assisted in exploring the essence of concepts and the discussion of relationships between codes, concepts and categories within the memos" (Dunn, 2011, p. 189).

Dunn's critique of the Glaserian method is important for this study. Dunn found the rigidity of the Glaserian method too constraining. He, for example, states that "Glaser's requirements during the analysis process was a challenge: to decide on when description should end and when 'conceptualising' should commence" (Dunn, 2011, p.188). Dunn also mentions the problem of participant bias, one that emanates from the establishment of extant theories and received wisdom. To surmount this, Charmaz (2006, p.26) recommends the importance of examining assertions "beneath the surface" and enquiring for more detail. Dunn's study portrays Glaser as positivistic and Charmaz as interpretivist. Dunn emphasizes the importance of choosing and consistently adhering to a particular flavour of grounded theory.

2.2. Straussian Grounded Theory

The second approach, known as Straussian, came into existence when Anselm Strauss, came to hold views different from that of Glaser. Whilst Glaser advocated strict adherence to the original tenets of the method, as contained in "The Discovery of Grounded Theory" (Glaser and Strauss, 1967), Strauss, along with his colleague Juliet Corbin, argued that the method should evolve in accordance with pragmatic situations (Strauss & Corbin, 1998). Glaser was also strongly opposed to Strauss and Corbin's detailed procedures for data analysis, as contained in their, "Basics of Qualitative Research Techniques and Procedures for Developing Grounded Theory (1990, first edition and 1998 second edition), going as far as advising the authors to "either re-write their book or re-name the new method" (Glaser, 1992; Strauss & Corbin, 1990). Glaser is convinced that there is just one grounded theory method, one that he calls the 'true grounded theory,' staunchly opposing all other flavours (Glaser, 2001). These differences led to the first split in grounded theory methodology. Strauss and Corbin argued that the method should be evolving as a tool of research. They admit the importance of recognising bias that may creep by the researcher's preconceptions (Strauss & Corbin, 1998). However, as Charmaz (2006) argues both the Glaserian and Straussian grounded theory approaches emanate from an objectivist stance, thus giving way to the emergence of the third approach to doing grounded theory called the Constructivist grounded theory method. In terms of objectivity of the researcher, Strauss and Corbin (1998) take a middle ground in – although acknowledging that the researcher cannot possibly go into the problem without any pre-conceptions, they advise that the researcher should try to stay as objective as possible during any interactions with participants.

Nguyen, Partridge, & Edwards (2012), as part of an on-going PhD research, published a paper entitled "Understanding the Participatory Library through a Grounded Theory Study", which adopted the Straussian grounded theory method. The authors argue that the detailed procedures and tools are well suited to investigate Web 2.0 for libraries. The authors used in-depth interviewing technique with six librarians and identified five key overarching factors that are deemed essential for a participatory library including technological, human, educational, social-economic, and environmental (Nguyen et al., 2012).

2.3. Charmaz's Constructivist Grounded Theory

Yet another approach, the third flavour, is attributed to Kathy Charmaz (2006) who argues that both Glaser and Strauss were wrong-footed in being positivists in their treatment of the researcher as a distant and objective observer during data collection and analysis. Charmaz's approach is known as the constructivist grounded theory method as it adheres to a constructivist philosophical approach, wherein both the researcher and participants mutually co-construct meaning during data collection and analysis. According to Charmaz (2006, p.131), the positivist approach to grounded theory lends itself to the objectivist and deterministic approach to research, where it considers the existence of a single interpretation to reality. For Charmaz, both Glaserian and Straussian approaches to grounded theory treat the researcher as an objective observer. In contrast, Glaser (2002) contends that Charmaz's notion of co-construction of interpretations between researcher and participant, arguing that the approach biases the results.

As opposed to this objectivist approach, especially Charmaz (2006) and Mills, Bonner & Francis (2006) adopt a constructivist approach to grounded theory, emphasizing the view that the interaction between the investigator and participants in interviews cannot be neutral as such. Mills, Bonner & Francis (2006, p. 9) argue that through active engagements during the interview process, ideas are raised, discussed and knowledge is mutually constructed. According to this view, the researcher and the participants co-construct data, in a process known as data generation.

In complete agreement with Charmaz (2006), Mills, Bonner and Francis (2006, p.10) advocate non-hierarchical intimacy, reciprocity, open interchange of ideas and negotiation (including consensus on the location and time of interview) between the researcher and participants. The researcher also has the opportunity to express and reflect upon his/her viewpoints and perspectives (Mills et al., 2006), in a way similar to what happens during other conventional conversations and academic discussions. By acting thus, the interviewer has the opportunity to voice his view points and perspectives while allowing the voices of interviewees to be heard. Furthermore, grounded theorists argue that the method should be allowed to evolve without losing its main tenets, namely, simultaneous data collection, avoidance of pre-formulated hypothesis, systematic coding, constant comparisons, theoretical sampling and theoretical saturation (Bryant & Charmaz, 2007a, 2007b). In addition, Unlike Glaser, Charmaz argues the voice of the research participant should be part and parcel of the various stages of analysis including in the final writing up process.

Finally, it is important to note that Charmaz (2006) counter-argues against Glaser's original conception of literature review, contending that as researchers have already been exposed to the extant theories, concepts and hypotheses in their fields of study, it is impractical to assume that staying away from doing literature review helps in steering clear off such pre-conception. Charmaz seems

to have no problem with extant theories in the literature, as long as the researcher is aware of them and takes care not to start from them. Charmaz concurs with the view that the theory should emerge from the data. Her constructive flavour to grounded theory is the fact that she believes that theory emerges from an active engagement between the researcher and participants during the interviews and other data collection stages.

3. Rationale for Using Constructivist Grounded Theory for Library and Information Science Research

As Lehmann (2010) acknowledges, grounded theory is an appropriate method for research in information systems, as the domain deals with several overarching components, including technology, data, procedures, and people. The patterns of behaviour, views and perspectives of users is considered the core component, hence, grounded theory is well suited for the study of these attributes. Allan (2007) also asserts that grounded theory is a systematic and rigorous method for research information systems. He details how its various procedures, such as open coding, constant comparison, memo writing and theoretical coding, can be used when conceptualising real-world problems in information science research and can help in generating theory that explains patterns in behaviour, users' satisfaction or other relevant research issues. It has been acknowledged that the method is especially pertinent in areas where there is scarcity of theoretical foundations. The sub-category of information systems research that deals with digital libraries is one such domain, as it is one in which the generation and use of theories has been scant to date (Andersen & Skouvig, 2006; Floridi, 2009; Hjørland, 2000; Lehmann, 2010). Andersen and Skouvig (2006, p. 318) assert that "for knowledge organization to uphold significance recognizable by society, it needs to engage in and be informed by theories and understandings that locate and analyse society and its historically developed forms of organization". There is, therefore, a pressing need for developing theories. It is hoped that, in the context of this study, conceptualisation would inductively generate concepts, categories and principles, which in turn would help the development of a theoretical framework.

Noting the scant usage of grounded theory in LIS research, Mansourian (2006) indicated that the simultaneous data collection, iterative conceptualisation and rigorous interplay with data are some of the most important tenets of the method which are beneficial for LIS research. Due to the importance of emergence of concepts from the ground up, the authors noted the importance of allowing sufficient time, suggesting thus the relevance of the method for long-term research projects such as PhD (Mansourian, 2006). Mansourian (2006), however, does not indicate which of the three grounded theory approaches best fit for LIS research.

It is important to note that classic grounded theories such as Glaser espouse that the researcher keeps some distance not to inject bias and preconceived ideas into the interviewee's responses. As opposed to this objectivist approach, later grounded theorists especially Charmaz (2006) and Mills, Bonner and Francis (2006) adopt a constructivist approach to grounded theory and emphasise that

interviews cannot be neutral as such. Mills, Bonner and Francis (2006, p. 9) argue that through engaging discussions during the interview process, ideas are raised, discussed and knowledge is mutually constructed. Grounded theory investigates and explores issues that affect particular groups of people (Mills, Bonner and Francis, 2006, p.8). In this study the issues include the existence of disparate standards that cause problems of information cross-searching and integration caused by the lack of interoperability between digital libraries and repositories. In this connection, new technologies including the Semantic Web and Web 2.0 applications are looked at in relation to their effect on issues of semantics in searching electronic databases and search engines. According to Mills, Bonner and Francis (2006) the researcher and the participant co-construct data, which they call data generation. Like Charmaz (2006), Mills, Bonner and Francis (2006, p.10) advocate for non-hierarchical intimacy, reciprocity, open interchange of ideas and negotiation (includes agreeing on the location and time of interview). The researcher reflects on his/her viewpoints and perspectives (Mills, Bonner and Francis, 2006, p.12) as in other conversations and academic discussions. As well as allowing the voices of the interviewees, it is only natural that the interviewer voices his viewpoints.

In recognition to the existence of multiple interpretations (vocabularies) about information objects, the PhD research mentioned in this paper takes a social constructivist approach and henceforth an interpretive epistemological paradigm. In addition, to the novelty of use of web 2.0 and social media in libraries, the issue of socially-constructed metadata approaches is relatively under-developed and thus there are absence of extant theories. Thus an inductive approach and a grounded theory method were considered appropriate. Taking into account, the potential existence of diversity of views among librarians, LIS researchers, metadata experts and library users with respect of the issues of involving users in metadata creation, from the three approaches to grounded theory, Charmaz's constructivist approach was considered fitting. The constructivist grounded theory method allows two-way mutual co-constructions and allows the researcher to proactively engage in the research process. Adopting a constructivist epistemological approach and grounded theory method, it is argued, affords the researcher flexibility and rigour to gather views and opinions, through interactive and iterative in-depth interviews, of LIS researchers, librarians and users. It also allows the researcher to analyse and interpret the perspectives of participants' through identification of concepts and categories from the data collected. Finally, the method is expected to help to develop a theory that overarches the concepts and categories derived from the data collected.

4. Timeline for Literature Review in Grounded Theory Method

Reviewing extant literature helps the researcher to highlight the conceptual background within the substantive area under study and also helps in the final portion of the research - discussion and relating the research questions to what has already been investigated elsewhere by other researchers (Charmaz, 2006,

p.168). The conventional wisdom, received from grounded theorists, is to approach the problem with an open mind, but not with an empty mind. This is agreed upon by most proponents of the method and the technical term used by them is theoretical sensitivity. However, as has been mentioned earlier, Glaser (1978, p.32) advises against the conduct of a literature review prior to data collection. He argues that doing so would derail the theory development process, as a result of the intrusion of pre-emptive and pre-conceived concepts that emanate from existing theories in the literature. However, as Bryant and Charmaz (2007), Charmaz (2006) and Strauss and Corbin (1998) assert Glaser's view is flawed, pointing out the fact that the researcher may have already been exposed to a mass of literature and extant theories related to the problem.

Charmaz (2006) recommends that the researcher embark up on research with some tangible problem at hand, along with any pre-conceived ideas and knowledge about the problem. She argues that the issue of theoretical sensitivity to the research problem at hand is inescapable, which, according to her, is something to be encouraged. "Give earlier works their due", Charmaz (2006, p.166) re-iterates. She believes reviewing the literature helps to identify gaps in extant works, place the research in context, refine, extend or revise existing theories, and to "weave the discussion" in the light of earlier works. Thus she accentuates the importance of reviewing the literature with critical mind. Charmaz (2006, p.165) notes the various routes researchers take in terms of the timeline of literature review including whether it is necessary to postpone it until the completion of the grounded theory analysis. Attending to the importance of flexibility, Charmaz seems to leave the decision of the timeline to the researcher. In accordance with this, in this research, the review of related literature was considered an important, iterative process which was conducted quite an early stage but revised and refined as the research progresses.

5. The Process of Selection of Research Participants

One of the features of a grounded theory method is that the number of respondents (sample size) cannot be predetermined in advance. Instead a procedure called theoretical sampling is employed. It is a technique that guides data collection as the study progresses, on the basis of the concepts and categories that have already emerged, from an analysis of the data that has been collected at a previous stage. Once a problem has been identified and an initial location for the study has been selected, initial data gathering may start at any place selected by the researcher. As the initially collected data is analysed, some preliminary concepts and categories will begin to emerge. These concepts and categories will then guide the next phase of data collection. Such theoretical sampling continues iteratively until such time that theoretical saturation is reached. The latter is the stage at which additional data stops providing new insights about the categories (Coleman & O'Connor, 2007).

According to Razavi and Iverson (2006, p.461), in grounded theory method "informants chosen for interviewing must be expert participants, with rich, extensive prior experience with the phenomenon, in order to be able to provide the researcher with a valid account of their experience." However, everything

that comes to add value to the research problem or phenomena is deemed relevant. As mentioned earlier, in grounded theory method, the first series of data collection and its subsequent analysis will serve as a guide to the next stage of data collection. This methodological approach is in accord with the constructivism paradigm. Guba & Lincoln (1989, p. 180) for example advise: “As the design proceeds, the constructivist continuously seeks to refine and extend the design - to help it unfold. As each sample is selected, each datum recorded, and each element of the joint construction devised, the design itself can become more focused. As the constructivist enquirer becomes better acquainted with what is salient, the sample becomes more directed; the data analysis more directed the construction more definitive”.

6. Data Collection through Intensive Interviewing

The grounded theory method allows simultaneous data collection and analysis (Charmaz, 2006; Guba & Lincoln, 1989). In the methodology, data is collected using field notes, interviews, historical documents, government records, etc. However, the data thus collected should be weighed in terms of relevancy, quality and quantity (Charmaz, 2006, p. 16). One of the most widely used data collection techniques in grounded theory is intensive interviewing. This technique allows the researcher to have an in-depth exploration of a topic, with the interviewer’s active engagement, and interpretation of the interviewee’s responses. As Charmaz (2006, p. 26) describes it, “an [intensive] interview goes beneath the surface of ordinary conversation and examines earlier events, views, and feelings afresh”.

The Constructivist Grounded Theory methodology adopted in this research recommends that the interview processes be open-ended, conversational, and mutually constructed, hence it ensures that the required depth, richness and rigour is acquired. Unlike descriptive statistical research methods, the Constructivist Grounded Theory methodology favours fewer participants, but necessitates more detailed and intensive interviews. Therefore, the number of interviewees in this research is relatively fewer (a total of 56 for all three studies) when compared to other kinds of research methods, such as surveys. This is partially due to the Constructivist Grounded Theory methodology’s focus on identifying and developing concepts on the basis of a few, but intensive, data collection endeavours, rather than aiming at representation and generalisation that forms the essence of other research approaches. Following Charmaz (2006), this research followed the procedures and techniques depicted in the Research Design diagram, shown in Figure 1.

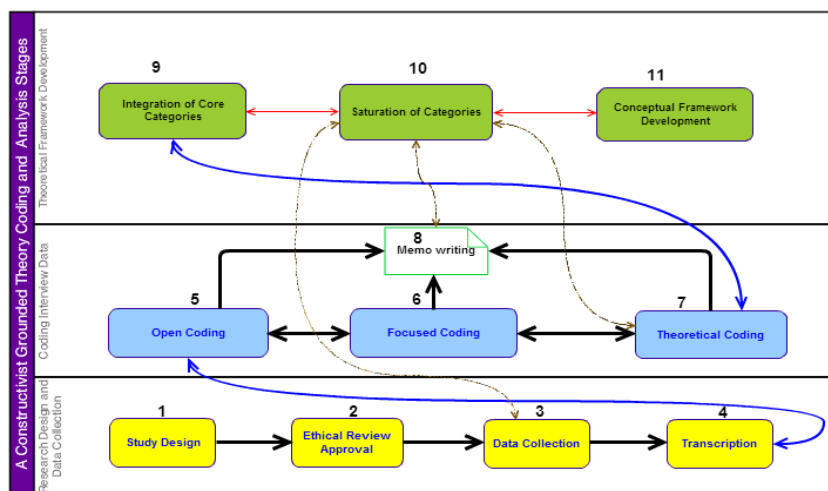


Figure 1: Research Design

Full definitions of the procedures portrayed in the Research Design Diagram, which form constituent elements of the Constructivist Grounded Theory methodology, are to be found in Chapter Four. As is evident from the Diagram, (note the double edged arrows), the Constructivist Grounded Theory methodology is an iterative, and hence non-linear, and evolutionary process.

The intensive interviewing technique was chosen, in order to enable the interviewer to ask for more detail, delve into an issue, go back and forth among important points and request for more explanation (Charmaz, 2006). Open-ended semi-structured interview questionnaires were prepared. Since the objective of the study was to iteratively identify, saturate and develop emerging concepts, the selection of participants was made essentially purposive. In particular, prospective interviewees were systematically identified through prior contacts and an identification of work experiences and research interests. In accordance with the Constructivist Grounded Theory methodology, the choice of potential interviewees was not pre-determined. Instead, the process was iterative and evolutionary. For example, the first sets of interviews were transcribed, reflected upon through memo writing, and then used as a basis for categorizing, discovering, selecting, informing and getting the consent of subsequent sets of interviewees.

The discussions on Study-One are presented in Chapter Five. For Study-Two, the interviewees represent a diverse mix of personalities, each having different experiences, authority and expertise in the domain of Library and Information Science, including heads (directors) of metadata and bibliographic services at world-renowned national and academic libraries, notable, well-experienced and published researchers, internationally recognised metadata consultants who are also involved in international metadata standards development, experienced faculty members, and practising librarians based at various institutions across the world. Prior to the selection of an interviewee, a prospect’s publications as

well as on-going research projects were reviewed so as to gather as rich and diverse views as possible from him/her and also invoke interest in participation in the present study. Interviewees' places of work included the British Library (3), Library of Congress (1), Harvard University (1), University of Portsmouth (3), University of Loughborough (1), Kings College London (1), University of South Australia (1), University of Bologna (1), University of Parma (1), University of Zimbabwe (1), University of North Texas (1), Queensland University of Technology (1), OCLC Online Computer Library Centre (1), University College London (1), Cloud of Data (1), and 2 consultants who are not affiliated to any organisation.

Interviews for Study-Two were conducted between January 2012 and December 2012. Prior to each interview, and following selection, introductory contacts were made, via email, in order to obtain the consent of each interviewee as well as to reach bilateral consensus as to the timing and venue of the meeting. Due to geographical dispersion and convenience of availability, 14 interviews were conducted remotely (out of which 12 were via Skype and 2 were over the telephone), whilst 7 of the interviews were conducted face-to-face.

Broadly speaking the interview questions covered topics on the subject's views regarding contemporary metadata standards (MARC, Dublin Core), OPAC, Web 2.0 technologies and the role of socially-constructed metadata approaches, such as user tagging, user reviews, rating, and recommendations, on metadata functions, user motivations for involvement in metadata creation, metadata quality concerns, as well as visions for metadata in both the short- and long-term. Interviews were made purposefully conversational, in order to encourage dynamic participation, on the part of interviewees, in the ensuing exchange, which constituted a significant proportion of the meeting. Since the focus was on concepts and categories rather than description (i.e. conceptualisation rather than representative sampling), particular profiles of participants (such as personal details, educational background, gender, age, language, etc) were not collected and, hence, could not be analysed.

7. Use of Computer Assisted Qualitative Data Analysis Software (CAQDAS): NVivo 9

The use of software for qualitative data analysis is mainly for efficiency purposes. It enables the organisation of interview data and also facilitates the various stages of coding, memo writing and integration of the various emergent concepts and categories. As Atherton and Elsmore (2007) point out, a careful use of software provides efficient data handling and organisation capabilities for researchers. Advocating the use of computer assisted qualitative data analysis software (CAQDAS), Welsh (2002) notes that software can provide an audit trail of the data analysis process. It is important to note that, unlike quantitative data analysis software, such as SPSS, CAQDAS offers very little help in terms of generating automated data analysis procedures. In the context of Constructivist Grounded Theory data analysis, the use of CAQDAS is limited to data organisation and retrieval, coding segments of interview data with labels,

creating a hierarchy of codes, and, finally, eases the process of memo writing. To put it another way, the use of CAQDAS provides efficiency and flexibility. There are a number of CAQDAS applications available in the market. NVivo is one such application, designed with Grounded Theory data analysis in mind (Welsh, 2002). As Atherton and Elsmore (2007) advise, the choice and use of software for qualitative data analysis should match the underlying methodological and philosophical assumptions of the specific research at hand. Hence, NVivo version 9 was chosen to support data analysis in this study. As mentioned earlier, NVivo is designed with the aim of assisting researchers with qualitative data organisation and analysis. The software enables coding interview data with labels, creating relationships between codes, placing codes and concepts into categories, and writing memos about categories. The software also offers the capability to easily navigate among documents, which otherwise would have been an overwhelming task in a manual process. Figure 2 shows a screen copy of the NVivo 9 interface.

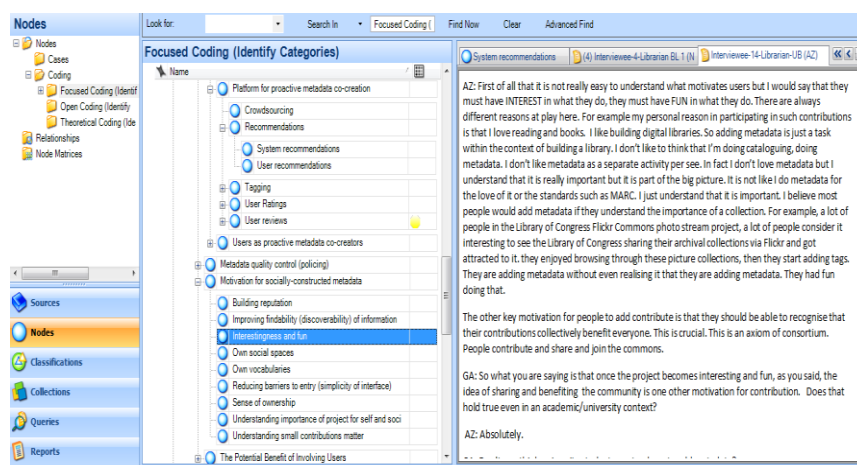


Figure 2: NVivo 9 Interface

8. Data Analysis through Coding Using Three-Stages of Constructivist Grounded Theory Method

Grounded theory method proceeds in an iterative interchange of data collections and analyses. Memo writing is an important part of this process (Charmaz, 2006; Strauss & Corbin, 1998). The various coding strategies and the memos written during the analysis phases are essential for identifying concepts and categories as well as for developing theory subsequently.

Coding is an essential step in a grounded theory data analysis. As Charmaz (2006, pp.43) defines it, coding is the process of labelling a line, sentence or paragraph of interview transcripts or any other piece of data (such as segment of audio tape, video record, etc.) with a short and precise name. As the author notes, during coding, the researcher generates the bones of analysis which will then be integrated and assembled at the stage of theoretical coding - which is

crucial for identifying emergent themes for further analysis and subsequent theory development Charmaz (2007, pp.45).

Coding follows from a detailed analysis of the data obtained from interview transcripts and questionnaires Codes are expressed in the form of short phrases called concepts. Whilst it is the researcher's prerogative as to whether to assign new labels or utilise the exact expressions employed by the participants (commonly referred to as 'in vivo codes' in the literature (Charmaz, 2006, pp.55; Strauss and Corbin, 1998, pp.105)), the labels/terms should be able to describe the underlying data and also evoke meanings and actions. It is worth noting that 'in vivo' codes were first used by Glaser and Strauss (1967).

There are different stages of coding. The first phase is known as open coding or initial coding. It refers to the analytic stage in which concepts, their properties and dimensions are identified (Strauss & Corbin, 1998, p.101). Charmaz refers to this as initial coding (2006, pp.47), however, the nomenclature 'open coding' characterises the process better as it indicates that the identified concepts are grounded on the data and that the researcher remains open to any new concepts as well as any in vivo words.

Allan (2007) advises that, during open coding, the researcher should keep asking: "What is this data a study of? What concept or category does this incident indicate? What is actually happening in this data? This will continually remind the researcher of the original research intentions and aids him/her to stay in focus without getting lost amongst masses of data". He further recommends: "Don't analyse too much data at one go, in other words carefully examine the transcripts. Don't be totally biased with preconceived concepts. Stop and write memos in between. Don't lose track of your research topic. Ignore data that is not pertinent to the research topic (Allan, 2007).

Charmaz (2006) and Allan (2007) also recommend the use of gerund verbs as they help to identify dimensions and provide richness for analysis. This is to say the describing (verb) is preferred to description (noun); or leading (verb) to leader (noun). As Charmaz (2006, pp.49) asserts gerunds carry with them "a strong sense of action and sequence while also helping to remain focused on participants' responses and contextual meanings.

Overall, Charmaz (2006, pp.49) identifies the following key issues that need to be kept in mind during coding: remain open (whilst also recognising the difference between an open-mind and an empty-mind, as openness here refers the importance of allowing concepts to emerge and not forcing preconceived concepts onto the data), stay closer to the data; use simple, short and precise codes; preserve actions (use of gerunds), ensure constant comparisons between responses and concepts; and move quickly through the data; capture/condense meanings into "compelling codes [that] capture the phenomenon and grab the [attention of] the reader" (Charmaz, 2006, pp. 48). As grounded theory method is an intensely iterative process. Modify codes; re-word them with catchy/grabbing phrases through such iterative process. "Make your codes fit the data, rather than forcing the data to fit your codes" (pp.49).

Although the different flavours of grounded theory prescribe different stages of coding, following Charmaz (2006), three stages of coding have been adopted in

this study: open coding, selective coding and theoretical coding. Figure 3 illustrates the procedures followed during the analysis.

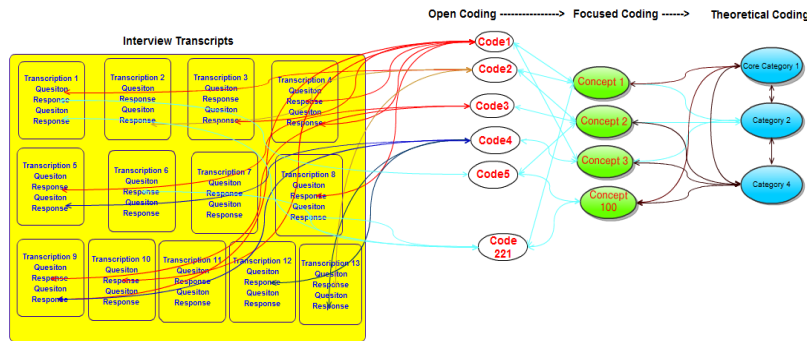


Figure 3: Three Stages of Constructivist Grounded Theory Coding

In conformance with the Constructivist Grounded Theory methodology, data collection and analysis procedures were implemented iteratively. The various concepts and categories evolved slowly, as in an emergent process. As Charmaz (2006) and Glaser (2001) advise, the focus was on conceptualisation (developing concepts), rather than producing narrative descriptions and making generalisations. Hence the data obtained from interviews was purged of references to place, time and people.

8.1. Open Coding (Identification of Codes and Concepts)

The first of the three stages of coding, i.e. Open Coding, resulted in the establishment of codes (labels) that were deemed pertinent to the representation of the data collected. As the Open Coding stage progresses, the same labels are re-utilised to code similar responses of new interviewees. Figure 4 shows a snippet of interview script on the right, along with its associated codes in the middle, as well as the three coding stages available in NVivo 9.

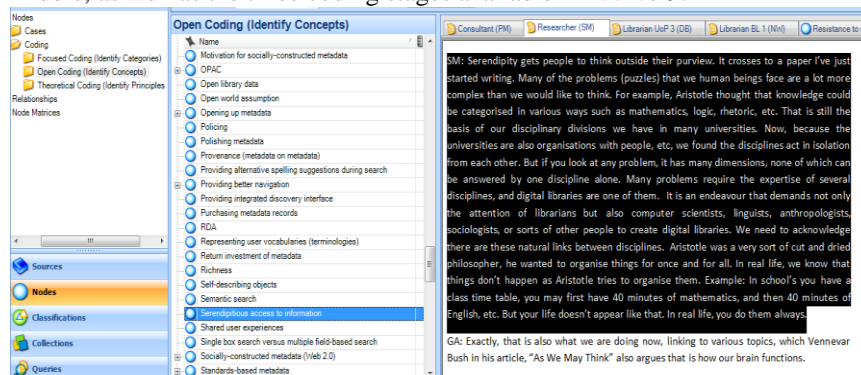


Figure 4: Open Coding Stage Using NVivo 9

As shown in Figure 4, a part of the interview text that discusses “serendipity” is coded with a concept “serendipitous access to information”. Any other interview text that deals with the concept of serendipity, wherever it may appear, is thereafter associated with or given the same concept and code. In a similar manner, all the 221 codes that have been established thus far have associated with each, a segment of interview transcript, providing hinges to bring together related responses from other interviewees. The Open Coding stage remains open for establishing new codes and concepts thus grounded in data. Figure 5 shows a sample of these 221 codes.

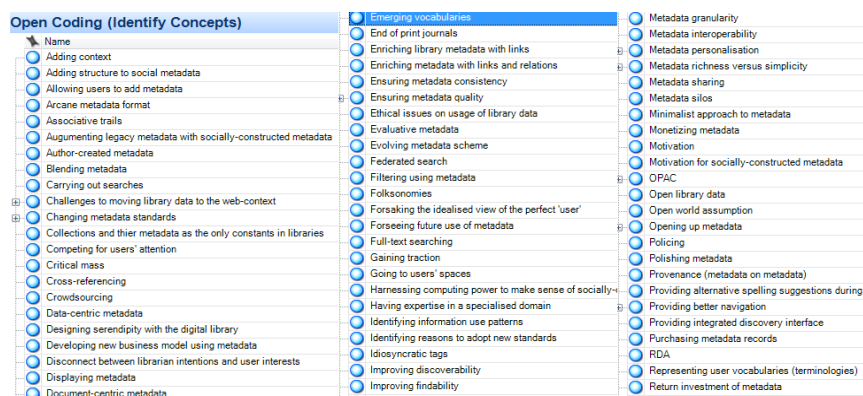


Figure 5: Sample Codes and Concepts of the Open Coding Stage

A total of 221 codes were established within the Open Coding stage, which then enabled progress to a more refined coding stage, called Focused Coding. It is worth noting that each Open Code on NVivo is linked to the sentences, paragraphs or short excerpts of interview transcripts with which it is associated.

8.2. Focused Coding (Identification of Categories)

Upon the completion the Open Coding stage, Focused Coding of codes and concepts is employed to identify emerging core categories. An example of how the interview data is coded into open codes, and then to focused coding is shown in Figure 6.

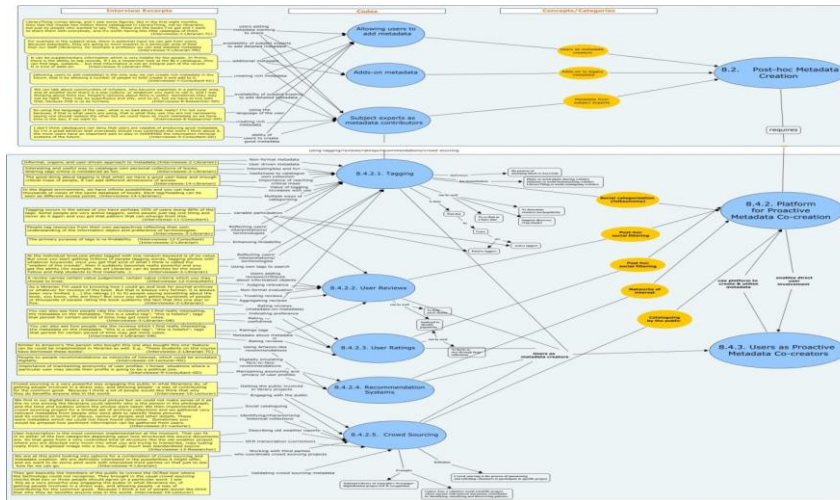


Figure 6: Identifying Core Categories

8.3. Theoretical Coding (Identification and Integration of Core Categories)

Whilst Focused Coding facilitates the organisation of the codes and concepts, established during the Open Coding stage, into higher level categories, Theoretical Coding, the last stage of coding, enables the saturation of the core categories identified during Focused Coding. The use of memos (containing reflections on the concepts and categories) and constant comparison between focused codes were instrumental for theoretical coding. During each of these refinement and saturation processes, the analysis moves from mere description to conceptualisation. For this particular study, the analyses resulted in the emergence of four major conceptual categories, also known as core categories. These core categories represent the overarching themes discussed by research participants. The terms or concepts associated with each core category were not necessarily identical to those mentioned by all participants; nonetheless iterative conceptualisation indicated that these core categories subsume within them the underlying concerns of participants in the context of metadata creation and utilisation in libraries. Subsequent chapters discuss these core categories exhaustively. Furthermore, the relationships among these four core categories are elaborated.

9. Memo Writing in Grounded Theory Method

In grounded theory method, memo-writing is an important step in the conceptualisation of data. Memos serve the researcher as analytic tools (Charmaz, 2006, p.72); helping him to pause and reflect on the data collection procedure and on the data collected. They also provide insight and are also helpful in deliberating on why a certain participant holds a particular point of view. According to Charmaz (2006, p.80) memos should be kept informal and

can be written at either the early stage of data collection (early memos) or at the later stages of data analysis (advanced memos).

In order to be able to allow concepts to emerge and identify the core categories, a memo writing technique of constructivist grounded theory was adopted, starting from the early stages of the research endeavour. These memos helped the researcher to think aloud, explore what lies beneath the responses of interviewees, relate and compare various responses, and discover conceptual themes. Written memos serve as enabling tools, allowing the researcher to reflect on the whole research process, including during data collection, analysis and write-up. They also help in maintaining rigour. Three distinct types of memos were employed: project journal, descriptive, and analytical memos (see appendix# for memo samples). Project journal memos are used for detailing the research process. These memos were kept in either NVivo or as part of the personal notes of the researcher or both. Furthermore, they were shown to supervisors so that the latter were kept informed about the process. Figure 7 is an example of a project journal memo written on 09-03-2012.

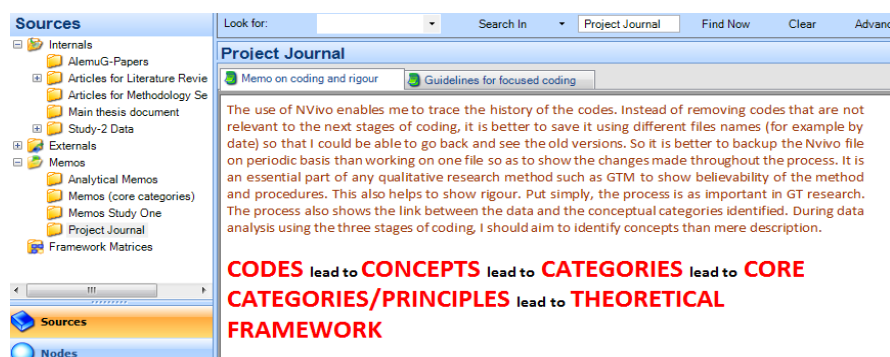


Figure 7: Example of a Project Journal Memo using NVivo 9 Software

In addition to project journal memos, descriptive and analytical memos were also implemented. Descriptive memos are mere descriptions of interview transcripts while analytical memos go one step further, and are employed for conceptualising the responses of interviewees into theoretical concepts. Analytical memos enabled this researcher to reflect upon interviewees' responses, as early as at the draft stage, and very often through informal writing. The various memos developed through time were thus compared and integrated when compiling relatively formal documents. In this research, analytical memos were very instrumental in the development of concepts. Figure 8 shows an example of an analytical memo.

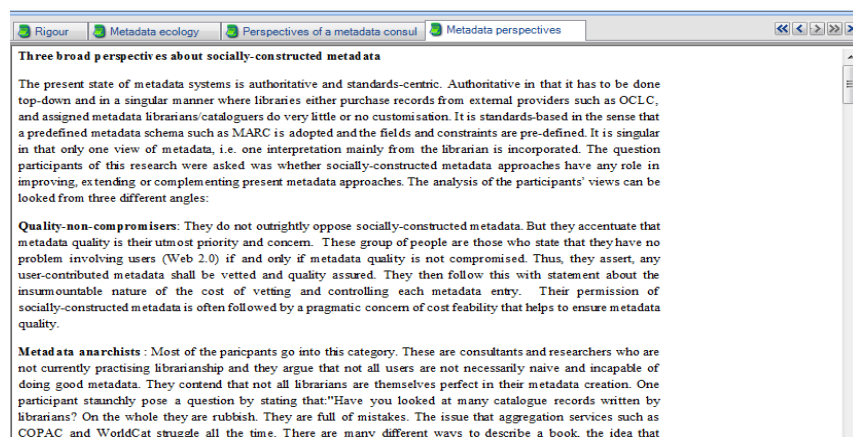


Figure 8: Excerpt of an Analytical Memo

10. Theoretical Saturation

Theoretical sampling (determining what type of data to collect next) and theoretical saturation (terminating data collection) are two importance processes of Constructivist Grounded Theory. Theoretical saturation is said to have been achieved when the core categories that have emerged from the research process are saturated (developed) with adequate data to the extent that the incorporation of new data provides no additional insight. Saturation is the stage at which the core categories, identified during the analysis, are supported through relevant and rigorous data and thus the various properties of the categories are established in great detail (Charmaz, 2006). According to Charmaz (2006, p. 100) initial sampling helps in determining where to start data collection. In this research, four core categories were found to have emerged. Data had been collected until these categories had become fully developed, with a complete set of properties and dimensions. Supplementary data was collected and incorporated, in an attempt to further saturate these four categories, but as the inclusion of additional interview transcripts did not yield any further insight or result in the addition of any novel property, a decision was made to terminate data collection. It is, nonetheless, important to note that this decision is also partially pragmatic, since, although there is always the possibility that issues other than those covered by the current research exist in the wide world, one has to stop somewhere. Charmaz's (2006, p. 114) also concurs with this, asserting that theoretical saturation is a subjective exercise and that the Constructivist Grounded Theory method, being an interpretive approach, acknowledges both the importance and limitations of such subjectivity. The diversity of the experiences, authority, and expertise of participants, along with the in-depth interviewing approach that has been employed, augmented by the rigour with which Constructivist Grounded Theory analytic procedures were followed, and, finally, the thoroughness of coding and memo writing practices, leads one to conclude that the required depth and rigour have been accomplished in this research.

11. Criteria for a Wholesome Grounded Theory

In a constructivism approach, the purpose of the final write-up does not seek to discover “truth” and does not provide a generalisation either (Guba & Lincoln, 1989, p. 180). According to Charmaz (2006, p.182), grounded theory studies should be evaluated, firstly, for its credibility which refers to the rigor in which the concepts, categories, arguments and analyses is supported by empirical data collected by the researcher. In connection with this, Charmaz (2006, p.182) asks whether “the data is sufficient to merit your claims?” The second criterion is originality which directly shows the contribution of the concepts, categories and arguments to extend or challenge existing practices. According to Charmaz, resonance, that is to what extent the findings make sense to the people involved (affected) by the findings. In other words, the participants should make sense of the categories and the theoretical rendering that resulted from the analysis of their data. The fourth and final criterion of constructivist grounded theory, according to Charmaz (2006), is usefulness. Usefulness answers how the categories and theory emerged from the data should be relevant to inform actual practises and should contribute to existing knowledge (Charmaz, 2006, p.183).

12. Summary of the PhD Research Results from the Constructivist Grounded Theory Method

Using a constructivist grounded theory method, three interrelated studies using interviewing techniques were employed with a total of 57 participants including Library and Information Science academics and researchers, librarians, metadata experts as well as library users. This research therefore inductively identified and developed concepts from data that were collected and analysed using a constructivist grounded theory method. Using rigorous conceptualisation of the data through three stages of coding as well as memo writing and theoretical saturation, four overarching metadata principles emerged, namely, Metadata Richness, Linking, Openness and Filtering. These principles helped to develop a theoretical framework that caters for the inclusion of socially-constructed metadata approaches. Augmenting standards-based metadata with socially-constructed metadata approaches was anticipated to have the following beneficial impacts on the future of metadata: reflecting user-terminologies, enhancing findability, improving serendipity, and identifying zeitgeist and emerging vocabularies. It is argued that, the richer an information object is described with metadata, the more likely that it conforms to the multitude of perspectives and interpretations of various groups of potential users. It is furthermore argued that the adoption of a social constructivist approach would foster the accommodation of the diverse set of interpretations, held by users, about information objects, hence, augmenting metadata richness. Findings of this research demonstrate that metadata should go beyond mere physical descriptions of information objects (i.e. the medium) by also incorporating descriptive elements regarding its socio-cultural facets (user tags, comments, reviews, links, ratings (in the form of likes and dislikes), and recommendations). This is to emphasize that the embodiment of the social space of metadata should

be considered as equally important as the recording of standardised and objectivistic metadata elements that have hitherto been used to characterise the physical attributes of information objects (Summary of the PhD findings will be presented in a separate paper).

13. Conclusion

In pursuant to the novelty of socially-constructed metadata approaches, an inductive research approach with a social-constructivist and interpretive epistemological paradigm was chosen. Attending to the constructivist intent and the induction research approach, a constructivist grounded theory was considered a fitting method to investigate the role of socially-constructed metadata approaches for the creation and management of metadata in libraries. Being an inductive method, this research does not test an existing hypothesis, but it develops novel ones through the research process itself. Instead of a pre-formulated hypothesis, this research takes an inductive approach where concepts and categories are developed from an empirical data collected using intensive interviews. The constructivist grounded theory approach affords the researcher the opportunity to be part and parcel of the research process, through proactive mutual co-construction and reflexivity, during data collection and data analysis.

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