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## Grounded theory for generating theory in the study of information behavior<sup>1</sup>

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### ABSTRACT

The use of grounded theory procedures for the study of information behavior has contributed to generating theory in this field. Thirty-one works were analyzed with regard to a) their relationship to the context in which the research was carried out, b) the aspect of information behavior researched, c) the use of grounded theory procedures, and d) the generation of theory. Most of the studies were carried out in the context of health information, and grounded theory procedures were for the most part only partially applied. The theoretical propositions produced depended on the subject being studied. Although this methodology is suitable for the study of an individual's interaction with information from that individual's own point of view, documentation of the procedures involved is often deficient.

### 1. Introduction

Articles on information needs and uses in the *Annual Review of Information Science and Technology* used to emphasize the limitations of this field by pointing to the lack of theoretical and methodological theories produced from research on information users.,

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Several studies that appeared towards the end of the 1980s and throughout the 1990s, however, indicated the extent to which the situation was changing. Wilson (1994), for example, stated that, after 50 years of research, it was possible to talk about a theoretical basis for the study of information behavior. Five years later, the same researcher (Wilson, 1999) stated that the positivist paradigm that had predominated in social science research had been discarded, and a general acceptance of qualitative methods, more suitable for the study of human behavior, was now enabling researchers to seek and originate theories and models suitable to the study of information behavior.

In the last decade of the 20th century, information behavior research contributed substantially to the established body library and information science theories (McKechnie, Pettigrew, & Joyce, 2001). On the other hand, with regard to the methodologies used, more than half of the research (58%) adopted a qualitative approach—or at least one that was both qualitative and quantitative (McKechnie, Baker, Greenwood, & Julien, 2002). Vakkari, in 2008, confirmed this assessment, comparing the papers presented at the annual Information Seeking in Context (ISIC) conference in the years 1996 (Tampere, Finland) and 2008 (Vilnius, Lithuania).

“Qualitative research” is an umbrella term that covers various approaches with different theoretical assumptions according to what is being studied and the methodology used (Flick, 2004). One of these approaches is grounded theory (GT), understood as a series of systematized but flexible norms for carrying out inductive qualitative research into developing theories (Charmaz, 2005). In recent years, GT has been the basis of many studies in library and information science research, as evidenced by the recent appearance of surveys of current publications by Selden (2005), Mansourian (2006), and Tan (2010) which,

although referring to the works surveyed, were also based on their own experiences in the use of this methodology.

Grounded theory is a qualitative research method that originated in the work of sociologists Glaser and Strauss (1967), and was developed later by Glaser (1978, 1992, 1998), Strauss (1987), and Strauss and Corbin (1998). Based on their work, Charmaz (2006) established the following as the defining components of GT:

- Simultaneous collection and analysis of data
- Constructing analytic codes and categories from data, not from preconceived logically deduced hypotheses
- Using the constant comparative method, which involves making comparisons during each stage of the analysis
- Advancing theory development during each step of data collection and analysis
- Memo-writing in order to define and elaborate categories, specify their properties, and define relationships between categories and identify gaps
- Sampling aimed toward theory construction, not to be representative of the population
- Conducting a literature review after developing an independent analysis.

Grounded theory gives priority to data and the subject being studied rather than to a priori theoretical assumptions. With GT, theory is originated and developed according to the field of study, and emerges from the empirical data obtained from it. As Flick (2004) explained, the purpose is not to reduce the complexity of observed reality to variables, but on the contrary, to increase it by including the context. With this methodology, therefore, a research process is devised to enable data to be collected and analyzed simultaneously and

repeatedly. The following procedures are essential to the process: *theoretical sampling*, *saturation theory*, *constant comparative method*, and *coding procedures*.

Theoretical sampling consists of selecting the group to be studied as long as it is generating new categories and until new cases cease to provide new information—or in other words, until theoretical saturation is reached (Charmaz, 2006). Theoretical sampling, therefore, does not depend on selecting a sample a priori, but rather runs parallel with information analysis, as long as it provides categories to advance the theory.

The constant comparative method is the principal strategy of GT. It provides a procedure for generating theory based on a comparative and systematic analysis of observed incidents. The constant comparative method is conceptualized and described in terms of four stages: comparing and categorizing incidents, integrating categories and their characteristics, developing, and writing up the resulting theory (Glaser & Strauss, 1967).

The process of analyzing the information collected is carried out using various different coding procedures which make up “the analytic processes through which data are fractured, conceptualized, and integrated to form theory” (Matavire & Brown 2008, p. 140). This analytic process consists of different stages which can be sequential but also iterative. Glaser (1978) refers to them as *substantive* (open and selective) and *theoretical* coding, while Strauss and Corbin (1998) call them *open*, *axial*, and *selective* coding.

For Mansourian (2006) and Tan (2010), the field of information behavior is noted for being a field where GT is much used, and indeed in some cases has been the source for some of the models and theories of information behavior most accepted in the research community (Fisher, Erdelez, & McKechnie, 2005). These models and theories include, for example, the theory of library anxiety (Mellon, 1986) and Ellis’s model of information-seeking (Ellis, 1993).

## **2. PROBLEM STATEMENT**

Over the last few decades, GT has been instrumental in the construction of a body of theoretical work in the field of information behavior. Two principal factors have contributed to this: GT's qualitative inductive nature, which enables observation of the user in context without resorting to pre-established categories, and b) its orientation towards the emergence of theory based on data, thus avoiding superficial descriptions of the interaction between user and system, or user and information.

There is an abundance of theoretical literature available concerning GT, as well as examinations of the principals of the various types of GT. Most of these are in the field of sociology. Where this literature refers to the empirical study of information behavior, it is evident that there is a degree of flexibility in the manner in which GT procedures are applied. Although GT does indeed allow for some flexibility, it should include accurate documentation of the research process, including a detailed description of the procedures used for the collection, analysis, and interpretation of the information provided by the users. No literature surveys, however, examine how these procedures were applied, and or indicate in detail the research procedures that lead to the emergence of theoretical models based on the interpretation of the data obtained.

Thus a wide and varied examination of how GT procedures are applied would not only assist researchers to understand this method and its application, but would also serve to evaluate the true extent to which it has contributed to the study of the information user. This article, therefore, addresses the following research questions:

- What information collection and analysis procedures were used in those studies of information behavior that used GT?

- What theoretical proposals emerged in information behavior research in which GT procedures were used?

### **3. PROCEDURES**

Works published between 2000 and 2009 were retrieved from Library and Information Science Abstract (LISA), and Social Science Citation Index (SSCI). These two sources were chosen in order to obtain a varied sample.

In LISA, the words “grounded theory” were searched in the title, descriptor, and abstract fields, yielding 112 documents. In SSCI, the search was made in the topic field, which includes word in title, abstract, and author keyword, and the results were then refined by selecting only those references with the subject “information science and library science.” This produced 83 results, for a total of 195, taking LISA and SSCI together. Only empirical original articles and empirical conference papers were selected, and when duplications were eliminated, along with those not published in English, a list of 160 items remained.

From this list, those which examined some aspect of the information search process from the user point of view, normally described as user studies (Wilson, 1981, 1994), were selected. These selection criteria have been used previously in the context of reviewing works published in Spain on information needs and uses (González-Teruel & Abad-García, 2007).

Those works were then selected in which the analysis was carried out based on data obtained directly or indirectly from users. Works oriented towards management without collecting user information, or works which were mainly about information literacy, were therefore excluded. Two researchers made independent selections according to these

criteria. Where there was disagreement, a third party, not part of the research team, was consulted, and that person's decision as to inclusion or not was final. After this process, from the initial list of 160 works obtained from LISA and SSCI, 31 works—that is, articles and conference papers published between 2000 and 2009—remained (see appendix). These were then analyzed according to the following criteria:

a) The context of the study, and the aspect of information behavior examined.

b) How the information was collected and analyzed.

- Sampling method: a distinction was made between theoretical sampling and purposive sampling, although they are often treated as synonymous in professional publications. For Pickard (2007), theoretical sampling is a kind of purposeful sampling. For Silverman and Marvasti (2008), the only difference between the two procedures occurs when the purpose behind purposive sampling is not theoretically defined. When classifying the works analyzed, the terminology used by the authors concerned was used.
- Mention of theoretical saturation, understood as a procedure that “signals the point in grounded theory studies at which theorizing the events under investigation is considered to have come to a sufficiently comprehensive end. At this point, researchers are comfortable that the properties and dimensions of the concepts and conceptual relationships selected to render the target event are fully described and that they have captured its complexity and variation” (Sandelowski, 2008, p. 875).
- Mention of the constant comparative method, understood as “a method of analysis that generates successively more abstract concepts and theories through inductive processes of comparing data with data, data with category,

category with category, and category with concept. Comparisons then constitute each stage of analytic development” (Charmaz, 2006, p. 187).

- Methods of data collection.
- Information analysis procedures, based on the various types of coding proposed by Glaser and Straus (1967), according to Heath and Cowley (2004) and Tan (2010), and which correspond to separate stages of data analysis (Table 1).

Table 1: Glaser and Strauss data analysis (Heath and Cowley 2004; Tan 2010)

	<b>Glaser</b>		<b>Strauss and Corbin</b>
Initial coding	Substantive coding	Open and selective	Open coding
Intermediate phase		coding	Axial coding
Final development	Theoretical		Selective coding

Apart from the coding procedures indicated above, other coding procedures were also taken into account, such as line-by-line and in vivo coding, both of which are also related to the principles of GT coding processes.

c) Models for the study of information behavior produced by studies where GT is used, as defined by Wilson (1999, p. 250): “A model may be described as a framework for thinking about a problem and may evolve into a statement of the relationships among theoretical propositions. Most models in the general field of information behavior are of the former variety: they are statements, often in the form of diagrams, which attempt to describe an information-seeking activity . . .” In addition, other theoretical propositions that emerge from data by means of GT were analyzed.



## 4. Results

### 4.1 Context of the studies and the aspect of information behavior examined.

The works analyzed were in the following context areas: health organizations and/or health information; academic institutions; organizations; and everyday life information-seeking context and professional environment (Table 2). The health field predominated (12 studies), of which six works focused on the information-seeking process by patients or potential patients (seeking information on the Internet; access to health information in general; the effect of access to information in the interaction between doctor and patient; and the usefulness of having access to the patient's record). The impact on, effect of, or benefits to be derived from an information system in a health organization (digital library; hospital computerized physician order system; or a computerized physician documentation system) were studied in four of the works. The remaining two researched nurses' information behavior and the use of digitized resources in hospital libraries.

Table 2: Context of the studies

<b>Context</b>	<b>N</b>
Healthcare organizations and health information	12
Academic	6
Organizational	5
Everyday life information seeking	5
Professional	2
Not identified	1
<b>Total</b>	<b>31</b>

In the academic context, there were six studies, of which three researched information-seeking on the Internet, focusing on search failure and alternative strategies, the context in which it was made, and interaction with the search tools. The aspects investigated in the remainder varied: analysis by means of GT procedures of replies to open

questions in surveys; information-seeking activities of scholars; and the use of information in relation to plagiarism.

With regard to organizations, of the five works concerned, two dealt with aspects that conditioned the use and sharing of information. The remainder examined various different aspects: collaborative information behavior; problem situation; and dimension and information behavior in general. In the area of everyday life information-seeking, two looked at the information behavior of immigrants, two at information behavior on the Internet, and one at how people make credibility assessments in a wide variety of everyday life information-seeking contexts. The remaining works studied other aspects: the use of information by archaeologists; the information-seeking behavior of engineers; and relevant judgment statements when finding information on a subject.

#### *4.2. How the information was collected and analyzed.*

##### *4.2.1. Sample*

In most of the works, the sampling method formed part of the qualitative research strategy itself (Table 3). Of these, however only six explicitly referred to theoretical sampling, which is part of GT, and the remaining eight referred to purposive sampling in general, or a variation of it (snowball effect sample) as methods of selecting the group studied.

Of the other works analyzed, five used self-selection by the informants, one used random sampling, and 11 gave no indication of how the sample studied was selected.

Table 3: Sampling method and theoretical saturation

<b>Sampling method</b>	<b>Theoretical saturation</b>	<b>No theoretical saturation</b>	<b>Total</b>
Purposive sample	3	5	8

Theoretical sample	4	2	6
Self-selected sampling	0	5	5
Randomly selected sample	0	1	1
Not indicated	0	11	11
Total	7	24	31

#### 4.2.2. *Theoretical saturation*

Only seven publications mentioned theoretical saturation as the strategy that finalized collecting new incidents (Table 3). In one case where theoretical saturation was mentioned together with theoretical sampling, however, it was said to occur when not all of the data had yet been collected: “Review of the data revealed that the phenomenon of saturation was reached after the first four interviews; the final seven interview sessions revealed no new categories beyond those identified during the first four interviews” (Embi, Yackel and Logan, 2004, p. 302).

Furthermore, in seven cases, although theoretical or purposive sampling was used, theoretical saturation was not. As with the previously mentioned case, if theory does not emerge from sampling and selection of participants running in parallel with data analysis, but rather with a priori criteria, theoretical saturation is not being followed.

#### 4.2.3. *Constant comparative method*

The use of the constant comparative method (Table 4) was mentioned in four of the works, of which eight also mentioned the use of theoretical or purposive sampling.

The constant comparative method was mentioned in five of the works, even though the sampling was neither theoretical nor purposive, and six works, although they had used one of these sampling methods, omitted the constant comparative method. Both categories suppose a partial use of basic GT procedures.

Table 4: Sampling and constant comparative method

Sampling method	Constant comparative method	No constant comparative method	Total
Purposive sample	5	3	8
Theoretical sample	3	3	6
Self-selected sampling	1	4	5
Randomly selected sample	1	0	1
Not indicated	3	8	11
Total	13	18	31

Only four works mentioned both the use of the constant comparative method and saturation theory procedures. On the other hand, there was a partial use of these procedures in 12 works (Table 5).

Table 5: Constant comparative method and theoretical saturation

	Constant comparative method	No constant comparative method	Total
<b>Theoretical saturation</b>	4	3	7
<b>No theoretical saturation</b>	9	15	24
<b>Total</b>	13	18	31

#### 4.2.4. Methods of data collection.

The studies analyzed used eight different methods of information collection: interviews (25), observation (8), focus group (4), survey (3), diaries (2), groups (2), documents (1), and expert opinions (1). In 19 cases only one was used, and in 12, more than one. When more than one method was used, the most frequent combination was interview, together with observation (Table 6).

Table 6: Data collection methods

Methods	N
Interview	13
Interview and observation	6
Survey	2
Interview and focus group	2

Survey and interview	1
Interview, focus group and observation	1
Interview, diaries, documents and observation	1
Interview and groups	1
Groups	1
Focus group	1
Expert opinion	1
Diaries	1
Total	31

#### 4.2.5. *Types of coding*

Almost half of the works analyzed used a method of coding that is part of GT. The other half either spoke of content analysis in general (5), or did not specify the coding method (11). There was also one case in which the analysis did not conform to the original GT proposals, but followed other guidelines Williamson and McGregor (2006).

Besides substantive, theoretical, open, axial and selective coding, in four cases line-by-line coding and in vivo coding were mentioned (Table 7).

#### 4.2.6. *Summary*

Table 7 shows the 21 works that explicitly spoke of some of the procedures discussed above, including some type of coding belonging to GT. The other works (10) stated that they used GT, but did not mention any of its procedures.

Table 7. Grounded theory procedures

	1	2	3	4	5	6	7	8	9	10	11
Adams and Blandford (2002)					.			.	.		
Adams <i>et al.</i> (2005)					.			.	.		
Ahmad <i>et al.</i> (2006)				.							
Begay <i>et al.</i> (2004)				.	.				.		
Bronstein (2007)				.	.			.			
Callen <i>et al.</i> (2006)	.	.	.	.	.						.
Correia & Wilson (2001)	.	.									
Embi <i>et al.</i> (2004)	.		.								
Hilligoss and Rieh (2008)	.		.								
Julibert (2008)	.			.	.				.		
Lösch (2006)		.									
McKnight (2007)	.		.	.	.				.	.	
McMillan (2008)	.				.			.	.		
Musoke (2007)	.			.	.			.			
Odini (2005)				.							
Pace (2004)	.	.	.	.	.		.	.			
Prekop (2002)				.				.	.		
Shoham and Strauss (2007)	.			.	.				.		.
Southwick (2003)	.			.							
Winkelman <i>et al.</i> (2005)		.	.	.	.	.		.	.		
Xie (2009)		.	.		.			.	.		.

Key: 1. Purposive sample; 2. Theoretical sample; 3. Theoretical saturation; 4. Constant comparative method; 5. Open coding; 6. Substantive coding; 7. Theoretical coding; 8. Selective coding; 9. Axial coding; 10. In vivo coding; 11. Line-by-line coding.

Of these 21 works, only four (shaded gray in the table) were based on a purposive or theoretical sampling, mentioned the constant comparative method and the theoretical saturation, and explicitly referred to a type of coding process that form part of GT. Only four works, therefore, explicitly referred to all of the basic GT procedures examined here, another 17 referred to them only partially, and 10 stated that they were based on GT principles but did not mention any of its procedures.

#### 4.3. Models for the study of Information Behavior

Of the 31 works, 22 demonstrated a large variety of theoretical propositions based on data. Of those, only 16 documented a GT procedure (Table 7). Moreover, in 10 of the 31 works, the results were expressed descriptively without being based on concepts,

categories, or propositions emerging from the data, and only six of them mentioned a GT procedure.

Of the 16 works that included a theoretical proposition and also indicated a GT procedure, the latter were referred to in various ways. In three cases, models were presented that described some aspect of the information-seeking process:

- Model of information-seeking behavior based on a study of Jewish studies scholars, based on Ellis's behavioral model categories (Bronstein, 2007).
- Model of information behavior of on-duty critical care nurses. Nurses' Patient-Chart Cycle (McKnight, 2007).
- Interaction-value model (Musoke, 2007).

Nevertheless, most of the researchers described their results in terms of propositions or emerging categories (7), as for example, Winkelman, Leonard and Rossos (2005): "Four themes of the patient-perceived usefulness of online electronic medical records."

Similarly, other researchers (3) presented theoretical frameworks in which they used different types of categories, subcategories and subjects, for example, "Theoretical framework of health information wants" (Xie, 2009).

Finally, two works referred to their results as core categories or theory: "Core categories of factors influencing the environmental scanning activity" (Correia & Wilson 2001) or "Theory of the flow experiences of Web users" (Pace 2004).

## **5. Discussion**

The sample analyzed does not claim to be exhaustive, as the search strategy limited the final list to those works which contained the expression "grounded theory" in the title,

abstract, or descriptors. The objective was not to produce an exhaustive list, but to highlight the variety of incidents, and the works analyzed provided a varied panorama with regard to the use of GT for the study of information behavior. In the sample obtained, the first result of note is that most of the works analyzed were either carried out in the field of health, or related to the use of health information. It should be remembered that the discovery of GT arose from Glaser and Strauss's (1967) studies in the area of dying hospital patients, and that since then it has been customary to use GT in that field. For example, the impact that GT has had in the field of nursing has been described by Benoliel (1996).

With regard to procedures for information collection and analysis, there was a notable flexibility in the manner in which it is documented. On this subject, Strauss and Corbin (1998) described GT procedures as not designed to be followed dogmatically, but to be used creatively and flexibly if the researchers considered it to be appropriate. For example, works that mentioned the use of purposive or theoretical sampling frequently employed other selection criteria. This procedural flexibility was demonstrated by the fact that not only was the development of concepts and categories considered in the sampling, but also negative cases, and whether the group was representative.

With regard to sampling method, most of the works analyzed either did not use these methods, or else simply did not document them. On this subject, Jones and Noble (2007) pointed out that the main consequence of not using theoretical sampling was that the resulting theoretical propositions tended to be thin, and lacking in both density and variability.

Accepting that a degree of flexibility is admissible, rigor in documentation of the procedures, however, should not be compromised. In many of the works analyzed, the sampling method was not even mentioned, nor the point at which theoretical saturation



was reached, or the method of analysis. On this subject, it is interesting to read the words of Robert Suddaby (2006), editor and author of literature on qualitative research: When I review a paper containing a claim of grounded theory, I check to ensure that, at a minimum, the authors have described their methodology transparently enough to reassure me that they followed core analytic tenets (i.e., theoretical sampling, constant comparison) in generating the data and that I can reasonably assess how the data were used to generate key conceptual categories. (Suddaby, 2006, p. 640)

Finally, with regard to information collection procedures, many of the works analyzed used more than one data collection method, and in those cases the most frequent combination was interview combined with observation or focus group. On this subject, Dey (1999) indicated that, in GT, data collection from various sources reveals variations and confirms conceptualizations. This tendency concurs with that described by McKechnie et al. (2002), who referred to the large number of works in the field of information behavior in which data collection was based on triangulation methodology.

As indicated in the introduction, the principal aim of GT is the emergence of theory by means of an inductive and qualitative methodology. Most of the works examined here presented various models, categories, subjects, frameworks, or core categories grounded on data. As Case (2002, p. 138) stated, “grounded theories may serve as building blocks for formal and grand theories, while remaining close enough to real-world observations as to give us confidence in their validity.” Nevertheless, when presenting theoretical propositions, that validity can only be ensured if procedures are properly documented. Only half of the works analyzed, however, proposed theory backed up by the corresponding documented procedures.

More importantly, however, the great variety of theoretical propositions derived from the works analyzed confirms that the main advantage of GT is that the entire process is oriented towards the emergence of theory. In the field of the study of information behavior, this means that the work of the researcher is at all times oriented towards an understanding and analysis of the situations or incidents being observed. The researcher, in effect, takes on the role of the individual who needs and seeks information. This enables the research to get away from descriptive results about what an individual does—still a frequent research model in the literature on users—and brings the researcher closer to knowing how the individual thinks and feels when interacting with information. This in turn leads to a richer knowledge of his or her information behavior.

Clearly, therefore, GT places the researcher in the user-oriented paradigm dominant in user research, and distances them from the system-oriented paradigm still predominant in some places, such as Spain (González-Teruel & Abad-García, 2007). Adopting a qualitative methodology in general, and GT in particular, should not, however, be an excuse for omitting basic aspects of this research method, as it is rigor in applying these that ensures the validity of the project.

## **6. CONCLUSION**

The way in which GT procedures used in the study of information behavior are documented varied from one work to another. This may indicate that it is indeed a flexible procedure, as suggested by Strauss and Corbin (1998). It could be deduced, therefore, that the important aspect of this procedure is the result, or the production of theory based on the data, and not the means, the rigid and exhaustive application of the procedures. It should not be forgotten, however, that it could also indicate a degree of laxity in the

application of the methodology—that is, of fully indicating and explaining the procedures used. This in turn makes it difficult to evaluate the validity of the theory proposed by the research.

The theories proposed in the studies analyzed were varied, both with regard to the contexts studied and the aspects of the information search process described. They did, however, have one important thing in common: They made a connection between the data, the information provided by the user, and the construction of a theoretical framework. In the studies analyzed, concepts were deduced, categories established, and theory constructed based on data. That is to say, theories were not constructed based on categories established a priori that, often, are in turn based on socio-demographic variables.

GT and its procedures can therefore be considered to be a method which provides a tool of great value in orienting research on information behavior so as to be genuinely based on the users' point of view, provided that the benefits to be derived from this qualitative method do not obviate the need to document the fundamental stages of the research process.

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## APPENDIX

### Works analyzed:

1. Abrahamson, J.A., Fisher, K.E., Turner, A.G., Durrance, J.C., & Turner, T. (2008). Lay information mediary behavior uncovered: Exploring how nonprofessionals seek health information for themselves and others online. *Journal of the Medical Library Association*, 96(4), 310-323.
2. Adams, A., & Blandford, A. (2002). Acceptability of medical digital libraries. *Health Informatics Journal*, 8(2), 58-66.
3. Adams, A., Blandford, A., & Attfield, S. (2005). Implementing digital resources for clinicians' and patients' varying needs. *Medical Informatics and the Internet in Medicine*, 30(2), 107-122.
4. Ahmad, F., Hudak, P. L., Bercovitz, K., Hollenberg, E., & Levinson, W. (2006). Are Physicians Ready for Patients With Internet-Based Health Information? *Journal of Medical Internet Research*, 8(3).
5. Begay, W., Lee, D.R., Martin, J., & Ray, M. (2004). Quantifying qualitative data: Using LibQUAL+ comments for library-wide planning activities at the University of Arizona. *Journal of Library Administration*, 40(3/4), 111-119.
6. Bronstein, J. (2007). The role of the research phase in information seeking behaviour of Jewish studies scholars: A modification of Ellis's behavioural characteristics. *Information Research*, 12(3), paper 318. Retrieved from <http://informationr.net/ir/12-3/paper319.html>
7. Callen, J.L., Westbrrol, J.I., & Braithwaite, J. (2006). The effect of physicians' long-term use of CPOE on their test management work practices. *Journal of the American Medical Informatics Association*, 13(6), 643-652.
8. Correia, Z., & Wilson, T.D. (2001). Factors influencing environmental scanning in the organizational context. *Information Research*, 7, [paper 121]. Retrieved from <http://informationr.net/ir/7-1 /paper121.html>
9. Embi, P.J., Yackel, T.R., & Logan, J. R. (2004). Impacts of computerized physician documentation in a teaching hospital: Perceptions of faculty and resident physicians. *Journal of the American Medical Informatics Association*, 11(4), 300-309.
10. Hilligoss, B., & Young Rieh, S. (2008). Developing a unifying framework of credibility assessment: Construct, heuristics, and interaction in context. *Information Processing and Management*, 44(4), 1467-1484.

11. Huang, X., & Soergel, D. (2006). An evidence perspective on topical relevance types and its implications for exploratory and task-based retrieval. *Information Research*, 12, paper 281. Retrieved from <http://informationr.net/ir/12-1/paper281.html>
12. Huvila, I. (2008). The information condition: Information use by archaeologists in labour, work and action. *Information Research*, 13(4), paper 369. Retrieved from <http://informationr.net/ir/13-4/paper369.html>
13. Jeong, W. (2004). Unbreakable ethnic bonds: Information-seeking behavior of Korean graduate students in the United States. *Library & Information Science Research*, 26(3), 384-400.
14. Julibert, S. (2008). Employee attitudes to information sharing: A case study at the European Central Bank. *Records Management Journal*, 18(3), 194-204.
15. Losch, A. (2006). Combining quantitative methods and grounded theory for researching e-reverse auctions. *Libri*, 56(3), 133-144.
16. Mansourian, Y. (2008). Contextualization of web searching: A grounded theory approach. *The Electronic Library*, 36(2), 202-214.
17. Mansourian, Y. (2008). Coping strategies in web searching. *Program: Electronic Library and Information Systems*, 42, 28-39.
18. Mansourian, Y., & Madden, A.D. (2007). Perceptions of the web as a search tool amongst researchers in biological sciences. *New Library World*, 108(9/10), 407-423.
19. Maurel, D., & Bergeron, P. (2007). Problem situations encountered by middle managers working in a municipality in transition. *Information Research*, 12(4), paper colis21. Retrieved from <http://informationr.net/ir/12-4/colis/colis21.html> .
20. McKnight, M. (2007). A grounded theory model of on-duty critical care nurses' information behavior: The patient-chart cycle of informative interactions. *Journal of Documentation*, 63, 57-73.
21. McMillan, S.J., Johnson Avery, E., & Macias, W. (2008). From have nots to watch dogs: Understanding internet health communication behaviors of online senior citizens. *Information, Communication & Society*, 11(5), 675-697.
22. Musoke, M.G. (2007). Information behaviour of primary health care providers in rural Uganda: An interaction-value model. *Journal of Documentation*, 63(3), 299-322.
23. Oдини, C. (2005). Information seeking and communication behaviour of Kenya railways engineers. *University of Dar es Salaam Library Journal*, 7(2), 98-111.
24. Ostrander, M.C. (2008). Talking, Looking, Flying, Searching: Information Seeking Behavior in Second Life. *Library Hi Tech*, 26(4), 512-524.

25. Pace, S. (2004). A grounded theory of the flow experiences of Web users. *International Journal of Human-Computer Studies*, 60(3), 327-363.
26. Prekop, P. (2002). A qualitative study of collaborative information seeking. *Journal of Documentation*, 58(5), 533-547.
27. Shoham, S., & Kaufman Strauss, S. (2007). Information needs of North American immigrants to Israel. *Journal of Information, Communication and Ethics in Society*, 5(2/3), 185-205.
28. Southwick, S.B., & Bryans, J.B. (2003). Digital intermediation: An exploration of user and intermediary perspectives. In *ASIST 2003* (Vol. 40, pp. 40-51). Medford, NJ: Information Today.
29. Williamson, K., & McGregor, J. (2006). Information use and secondary school students: A model for understanding plagiarism. *Information Research*, 12, paper 288. Retrieved from <http://informationr.net/ir/12-1/paper288.html>.
30. Winkelman, W.J., Leonard, K.J., & Rossos, P. G. (2005). Patient-perceived usefulness of online electronic medical records: Employing grounded theory in the development of information and communication technologies for use by patients living with chronic illness. *Journal of the American Medical Informatics Association*, 12(3), 306-314.
31. Xie, B. (2009). Older adults' health information wants in the internet age: Implications for patient-provider relationships. *Journal of Health Communication*, 14(6), 510-524.

## REFERENCES

- Benoiel, J.Q. (1996). Grounded theory and nursing knowledge. *Qualitative Health Research*, 6(3), 406-428.
- Bronstein, J. (2007). The role of the research phase in information seeking behaviour of Jewish studies scholars: a modification of Ellis's behavioural characteristics. *Information Research*, 12(3), paper 318. Retrieved from <http://informationr.net/ir/12-3/paper319.html>
- Case, D.O. (2002). *Looking for information: A survey of research on information seeking, needs and behavior*. New York: Academic Press.
- Charmaz, K. (2005). Grounded theory in the 21st century: Applications for advancing social justice studies. In N. K. Denzin & Y. S. Lincoln, *The SAGE handbook of qualitative research* (3rd ed., pp. 507-535). Thousand Oaks, CA: Sage.
- Charmaz, K. (2006). *Constructing grounded theory: a practical guide through qualitative analysis*. Thousand Oaks, Calif.: Sage Publications.

Correia, Z., & Wilson, T.D. (2001). Factors influencing environmental scanning in the organizational context. *Information Research*, 7, paper 121. Retrieved from <http://informationr.net/ir/7-1/paper121.html>

Dey, I. (1999). *Grounding grounded theory: Guidelines for qualitative inquiry*. San Diego: Academic Press.

Ellis, D. (1993). Modeling the information-seeking patterns of academic researchers: A grounded theory approach. *Library Quarterly*, 63(4), 469-486.

Embi, P.J., Yackel, T.R., & Logan, J. R. (2004). Impacts of computerized physician documentation in a teaching hospital: Perceptions of faculty and resident physicians. *Journal of the American Medical Informatics Association*, 11(4), 300-309.

Fisher, K.E., Erdelez, S., & McKechnie, L.E. (2005). *Theories of information behavior*. Medford, NJ: Information Today.

Flick, U. (2004). *Introducción a la investigación cualitativa*. An introduction to qualitative research. Madrid, Spain: Fundación Paideia Galiza.

Glaser, B. (1978). *Theoretical sensitivity*. Mill Valley, CA: Sociology Press.

Glaser, B. (1992). *Basics of grounded theory analysis: Emergence vs. forcing*. Mill Valley, CA: Sociology Press.

Glaser, B. (1998). *Doing grounded theory: Issues and discussion*. Mill Valley, CA: Sociology Press.

Glaser, B., & Strauss, A. (1967). *The discovery of grounded theory: Strategies for qualitative research*. NJ: Aldine Transaction.

González-Teruel, A., & Abad-García, M.F. (2007). Information needs and uses: An analysis of the literature published in Spain, 1990–2004. *Library & Information Science Research*, 29, 30-46.

Heath, H., & Cowley, S. (2004). Developing a grounded theory approach: A comparison of Glaser and Strauss. *International Journal of Nursing Studies*, 41(2), 141-150.

Jones, R., & Noble, G. (2007). Grounded theory and management research: A lack of integrity? *Qualitative Research in Organizations and Management: An International Journal*, 2(2), 84-103.

Mansourian, Y. (2006). Adoption of grounded theory in LIS research. *New Library World*, 107(1228/1229), 386-402.

Matavire, R., & Brown, I. (2008). Investigating the use of grounded theory in information systems research. In *Proceedings of the 2008 Annual Research Conference of the South*

*African Institute of Computer Scientists and Information Technologists on IT research in developing countries: riding the wave of technology* (pp. 139-147). New York: ACM.

McKechnie, L., Baker, L., Greenwood, M., & Julien, H. (2002). Research method trends in human information literature. *New Review of Information Behaviour Research*, 3, 113-125.

McKechnie, L., Pettigrew, K.E., & Joyce, S.L. (2001). The origins and contextual use of theory in human information behaviour research. *New Review of Information Behaviour Research*, 2, 47-63.

McKnight, M. (2007). A grounded theory model of on-duty critical care nurses' information behavior: The patient-chart cycle of informative interactions. *Journal of Documentation*, 63, 57-73.

Mellon, C.A. (1986). Library anxiety: A grounded theory and its development. *College and Research Libraries*, 47(2), 160-165.

Musoke, M.G. (2007). Information behaviour of primary health care providers in rural Uganda: An interaction-value model. *Journal of Documentation*, 63(3), 299-322.

Pace, S. (2004). A grounded theory of the flow experiences of Web users. *International Journal of Human-Computer Studies*, 60(3), 327-363.

Pickard, A. J. (2007). *Research methods in information*. London: Facet.

Sandelowski, M. (2008). Theoretical saturation. In *The Sage encyclopedia of qualitative research methods* (pp. 875-876). Los Angeles: Sage.

Selden, L. (2005). On grounded theory with some malice. *Journal of Documentation*, 61, 114-129.

Silverman, D., & Marvasti, A. (2008). *Doing qualitative research. A comprehensive guide*. Los Angeles: Sage Publications.

Strauss, A. (1987). *Qualitative analysis for social scientists*. Cambridge: Cambridge University Press.

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Grounded theory procedures and techniques* (2nd ed.). Los Angeles: Sage.

Suddaby, R. (2006). From the editors: What grounded theory is not. *Academy of Management Journal*, 49(4), 633-642.

Tan, J. (2010). Grounded theory in practice: issues and discussion for new qualitative researchers. *Journal of Documentation*, 66, 93-112.



Vakkari, P. (2008). Trends and approaches in information behaviour research. *Information Research*, 13(4), paper 361. Retrieved from <http://InformationR.net/ir/13-4/paper361.html>

Williamson, K., & McGregor, J. (2006). Information use and secondary school students: A model for understanding plagiarism. *Information Research*, 12, paper 288. Retrieved from <http://informationr.net/ir/12-1/paper288.html>.

Wilson, T.D. (1981). On user studies and information needs. *Journal of Documentation*, 37, 3-15.

Wilson, T.D. (1994). Information needs and uses: Fifty years of progress? In B.C. Vickery (Ed.), *Fifty years of information progress: A Journal of Documentation review* (pp. 15-51). London: Aslib.

Wilson, T.D. (1999). Models in information behaviour research. *Journal of Documentation*, 55(3), 249-270.

Winkelman, W.J., Leonard, K.J., & Rossos, P. G. (2005). Patient-perceived usefulness of online electronic medical records: Employing grounded theory in the development of information and communication technologies for use by patients living with chronic illness. *Journal of the American Medical Informatics Association*, 12(3), 306-314.

Xie, B. (2009). Older adults' health information wants in the internet age: Implications for patient-provider relationships. *Journal of Health Communication*, 14(6), 510-524.