

The Impact and Influence of Information Grounds
on Information Behavior Research

Adam Worrall
Florida State University

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Karen Fisher, when planning her dissertation research in the mid-1990s under the name of Pettigrew, probably did not expect that the theory she would develop from it would become the cornerstone of her research career. Neither could she have anticipated the interest and popularity it would find in the study of what was then still often termed “information needs, seeking, and use” (Case, 2007). Fourteen years later, Fisher’s theory of information grounds has grown into one of the more prominent theories of information behavior in group environments, with particular application in contexts of everyday life. While still an order of magnitude less popular than major information behavior theories and models—compared against Kuhlthau’s information search process model, for example—information grounds has nevertheless grown into a useful concept, approach, and theory within the information behavior field.

As with most theories that see actual use and further development beyond their initial conception, the theory of information grounds has both impacted and influenced information behavior research in multiple ways. In turn, information grounds have been mutually shaped by the changes and debates in the information behavior literature. This paper reviews Fisher’s theory of information grounds, its evolution, and its influence throughout the past fourteen years. Starting with those who influenced Fisher in her dissertation research, it continues through the key studies she was part of that guided the theory’s development, articles and book chapters she published reviewing the theory and the associated research stream, and other information grounds studies she conducted along the way. Studies, developments, and reviews of the theory by other researchers are also reviewed, to obtain a full picture of its overall development, impact, and influence on information behavior research. While the future of the field and of the theory of information grounds may not be known, it is clear that information grounds will continue to evolve and influence information behavior research for many years to come. First, however, one must travel back to fourteen years ago and consider how the theory’s development began, particularly with regard to the influences Fisher felt as she completed her dissertation research.

Fisher’s Initial Influences

A key influence on Fisher’s work during her doctoral degree, and thus on her eventual formulation of the theory of information grounds, was the epistemological approach of social constructionism, particularly as it was conceptualized for information seeking and use by Tuominen and Savolainen (1997). Social constructionism argues, as stated by Harré (1983, p. 58, as cited in Tuominen & Savolainen, 1997, p. 81), that “the primary human reality is persons in conversation”; both conversation and writing are held to consist of production, organization, and construction of “our social reality” (p. 82). Followers of this approach, including Tuominen, Savolainen, Fisher, and others, believe it is a more appropriate approach to the study of information use than either the “Shannonian” (p. 83) or cognitive viewpoints (see also Ellis, 1992; Raber, 2003; Talja, Tuominen, & Savolainen, 2005). Tuominen and Savolainen also argued that the work of Taylor (1991, as cited in Tuominen & Savolainen, 1997) on information use environments and Dervin (1992) on sensemaking are consistent with social constructionism; to this Fisher added Chatman’s (1992, 1996) work (see Pettigrew, 1999, p. 810). The idea of social reality being created through “conversational networks” (Tuominen & Savolainen, 1997,

p. 92) thus had clear influence on both information behavior research in general and on Fisher as she developed the theory of information grounds in particular.

The work of Dervin has, of course, had tremendous impact and influence on the information science field as a whole and on information behavior research in particular. Besides the indirect influence she thus had on Fisher as she completed her doctoral degree and through her influence on Tuominen and Savolainen, Dervin also directly influenced Fisher's early work on the theory of information grounds. Pettigrew (1999) specifically cited Dervin's landmark review (with Nilan) of information needs and uses literature (Dervin & Nilan, 1986), her development of the timeline sensemaking interview technique (Dervin, 1992), and her discussion of information in context (Dervin, 1997) as key influences. A full treatment of Dervin's work is beyond the scope of this paper, but it is important to note Dervin's influence on Fisher as she began and continued to develop her theory of information grounds.

Fisher (Pettigrew, 1999; Fisher, Durrance, & Hinton, 2004) also cited Chatman as a key influence on her choice of populations to study, her methodological approach to the study of information behavior, and to the development of her theory of information grounds. Like Dervin, Chatman has had great influence on the field of information science and on information behavior research; her approach to theory development and ethnography in particular have been especially influential. Chatman's (1992) study of the information worlds of retired women, developing her theory of information poverty, played a large role in Fisher's choice of populations and activities to study; many of Fisher's early studies focused on populations that are older or face financial or information poverty (e.g. immigrants). Fisher thus was answering Chatman's call (seen in Chatman, 1996) for socially-aware research into the information behaviors of understudied, underserved, and information-poor populations. Chatman's approach to ethnographic research also influenced many of Fisher's early studies. Finally, while Chatman's approach to theory was not a direct influence on Fisher in her initial formulation of her theory, her follow-up research with Durrance and Hinton elaborated upon the theory and used a more rigorous approach akin to that of Chatman's (1996) in developing her theory of information poverty.

Fisher's original dissertation relied primarily on Granovetter's (1973, 1982, as cited in Pettigrew, 1999, p. 803) theory of the strength of weak ties "as the conceptual framework" (p. 803). His theory proposed that, within social networks, it is actually the weak ties that are the most valuable for the flow of information and resources, particularly new information since those who one is weakly tied to are likely "to interact with different individuals"—in terms used by other theorists, to be in different social worlds (Strauss, 1978) or information worlds (Chatman, 1992, 1996)—who will provide different information (Pettigrew, 1999, p. 803). Fisher (as Pettigrew) hypothesized that the relationship between the nurses and their patients in her study was a weak tie; they would provide information to the seniors that they could not obtain otherwise. Her findings relating to Granovetter's theory were reported in her dissertation and other articles that did not focus on information grounds, and thus are of less interest here. Nevertheless, it must be acknowledged that Fisher was clearly influenced by Granovetter's theory of the strength of weak ties in developing her theory.

One additional influence is not present as a citation in Fisher's original article introducing information grounds (Pettigrew, 1999), but must be acknowledged: her dissertation committee. In particular, Patricia Dewdney (Fisher's chair) and Roma Harris had a clear influence on the

theory's development, not just through their guidance of her dissertation research but also through their presentation of six principles of information sharing (Harris & Dewdney, 1994) in the context of their study of the information barriers of battered women. The principles can be paraphrased as noting that (a) information needs are situational; (b) there are many factors in seeking information, but individuals will focus on the most easily accessible information; (c) interpersonal sources are favored; (d) affective needs are important; and (e) information seekers are creatures of habit and pattern. Harris and Dewdney also presented a short section on "problems with the research" (pp. 28-30), in which can be seen many further influences on Fisher's research in general and information grounds in particular. Fisher arguably in her research answered their calls for (a) additional research on "ordinary" people, (b) a less system-centered focus, (c) a stronger theoretical basis, (d) more rigorous methodology, and (e) interdisciplinary research.

A few other authors also were minor influences on Fisher in her early work on information grounds: Kuhlthau's (1991) approach to information seeking and searching in context was briefly cited in Fisher's earliest study (Pettigrew, 1999), but did not remain an influence on the theory in later research, and Fisher also cited a number of researchers in health and human services in her initial study (pp. 82-803), but their influence also did not continue in further research.

The Information Grounds Literature

To chart the influence and development of the theory of information grounds, a literature search was conducted to identify papers, articles, and book chapters that developed, applied, or referenced the theory or the concepts inherent in it. The search employed Google Scholar; EBSCO's Library, Information Science & Technology Abstracts (LISTA) database; and H. W. Wilson's Library Literature and Information database; citation chaining was also used to find additional literature of relevance. The resulting literature can be broken into six categories:

1. Key articles by Fisher and her colleagues that have developed and significantly advanced the theory of information grounds, serving as Fisher's main research stream on the topic.
2. Articles, papers, and book chapters by Fisher and her colleagues that have applied the theory of information grounds, but are not (at least as of yet) significant developments or evolutions of the theory.
3. Articles and book chapters by Fisher and others that review the theory of information grounds, research that has been conducted on it, and/or its relationship to other theories within LIS.
4. Articles, papers, and book chapters that Fisher was not a contributor to that have applied her theory of information grounds in significant new areas or directions.
5. Articles, papers, and book chapters that Fisher was not a contributor to that have applied the theory, but mostly in a confirmatory fashion.
6. Articles, papers, and book chapters that briefly cite information grounds, but do not use or apply it in any way.

Arguably, the presence of the literature in category 6 already indicates that information grounds is influencing information behavior research simply through being known about by

these other researchers; however, since this literature did not apply the theory or extend it in any manner it was discarded. Literature from the first five categories is reviewed in the remainder of this paper, focusing on how each article, paper, or book chapter shows the evolution of (a) the theory itself; (b) its influence on information behavior research; and (c) its application in different contexts. Figure 1 (below) provides a visual representation of the literature authored or co-authored by Fisher, along with key influences throughout the theory’s development. Table 1, later in the paper, summarizes the literature authored by other researchers.

Category 1: Key Developments by Fisher

Dissertation Study: Community Foot Clinics

Any discussion of the development of the theory of information grounds by Fisher must begin with her dissertation study, completed while a doctoral student at the University of Western Ontario. As discussed earlier in this paper, she studied information behavior in the form of interactions between nurses, senior patients, and others in community foot clinics. Notably, at

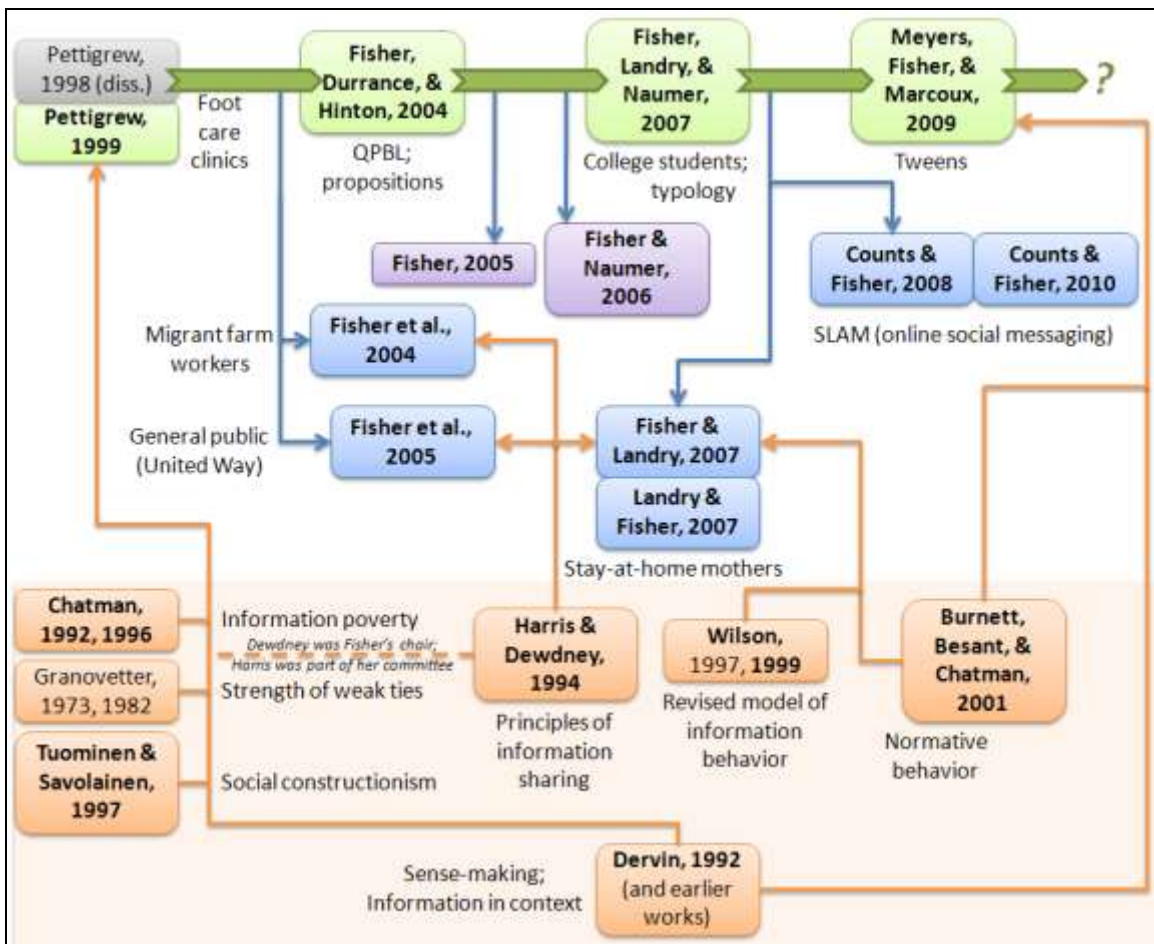


Figure 1: A visual representation of the literature on information grounds authored or co-authored by Fisher, along with key influences on her work. Key articles and papers (category 1 in the text) are shown in green; other studies (category 2) in blue, and review articles and chapters (category 3) in purple. Influential articles, chapters, and papers by others are in orange at the bottom of the figure; arrows indicate influence or branching off points.

this early stage she did not call information grounds a theory, labeling it a “notion,” concept, model, or construct instead (Pettigrew, 1999, pp. 801, 811-814); no theoretical propositions are presented yet, either. Drawing upon social network theory in general and Granovetter’s theory of the strength of weak ties in particular, Fisher (as Pettigrew) conducted an ethnographic observational study of these clinics and identified four contextual factors in the flow of information: (a) the physical environment, (b) activity at the clinic, (c) the nurse’s situation, and (d) the senior’s situation. She found that the information exchanged, in light of these contextual factors and of social constructionism, could be considered “a communicative construct involving the nature or availability of local services and programs that is produced in a social community-based context” (p. 811). She conceptualized the clinic as an information ground, defining the “notion” as “an environment temporarily created by the behavior of people who have come together to perform a given task, but from which emerges a social atmosphere that fosters the spontaneous and serendipitous sharing of information” (p. 811). The physical setting of the clinics changed, but the attendees and primary purposes of the clinics—to give or receive footcare—remained the same despite the temporary environment. Information was shared “on a range of topics and in a multitude of directions,” both purposively and serendipitously (p. 812) in the context of the four contextual factors Fisher had identified.

Fisher turned her attention elsewhere following her dissertation (McKechnie & Pettigrew, 2002; Pettigrew, Durrance, & Unruh, 2002; Pettigrew, Fidel, & Bruce, 2001; Pettigrew & McKechnie, 2001); as such, the influence of her initial article was very limited at first. Citation analysis using Google Scholar and Web of Knowledge shows at most eight sources citing the Pettigrew (1999) article before 2004, many of these from her direct collaborators at the University of Western Ontario or the University of Washington. The low number of citations may also have been due to its publication in *Information Processing and Management (IP&M)*, a somewhat atypical venue for social constructionist information behavior research. Nevertheless, the originating article has been cited more and become more influential as the theory has developed further.

Queens Borough Public Library Programs and Propositions

Fisher’s attention returned to information grounds due to it receiving attention from others (Fisher & Naumer, 2006, p. 97). She completed a second study using her theory which was published in 2004 in the *Journal of the American Society for Information Science and Technology (JASIST)*. This study (Fisher, Durrance, & Hinton, 2004) looked at immigrants’ use of literacy and coping skills programs run by the Queens Borough Public Library (QBPL) in New York City, focusing (as the article’s title suggests) on “a context-based, outcome evaluation approach.” The theory of information grounds was used to inform this, examining how immigrants used and benefited from these programs, what role context played in shaping outcomes, and in what ways these programs qualified as information grounds under the theory. Semi-structured interviews were used to collect data. A key contribution of this study, and one major reason for its substantial influence on other information behavior and information grounds research, was its identification of the key concepts and propositions of the theory following Chatman’s theory development approach (see Chatman, 1996). The concepts included (a) context rich, (b) temporal setting, (c) instrumental purpose, (d) social types, (e) social interaction, (f) informal and formal information sharing, and (g) alternative forms of information use. The propositions were as follows:

Proposition 1: Information grounds can occur anywhere, in any type of temporal setting and are predicated on the presence of individuals.

Proposition 2: People gather at information grounds for a primary, instrumental purpose other than information sharing.

Proposition 3: Information grounds are attended by different social types, most if not all of whom play expected and important, albeit different roles in information flow.

Proposition 4: Social interaction is a primary activity at information grounds such that information flow is a byproduct.

Proposition 5: People engage in formal and informal information sharing, and information flow occurs in many directions.

Proposition 6: People use information obtained at information grounds in alternative ways, and benefit along physical, social, affective, and cognitive dimensions.

Proposition 7: Many subcontexts exist within an information ground and are based on people's perspectives and physical factors; together these subcontexts form a grand context. (Fisher, Durrance, & Hinton, 2004, pp. 756-757)

The article also served as the introduction of information grounds to a broader audience through its publication in *JASIST*, a more appropriate venue than *IP&M*. It has proved to be highly influential, especially in terms of stating the key propositions of the theory for use by others. While not a major evolution of the theory itself, the inclusion of these propositions did allow for more rigorous testing and application of the theory by Fisher, her colleagues, and others. Arguably, the study was also the first to violate at least one of the propositions it presents. The QBPL programs, although not taking place at library branches, could have a primary purpose of sharing information. This would clearly violate Proposition 2 as cited above; however, Fisher, Durrance, and Hinton (2004) did not appear to consider this a problem.

College Students, Surveys, and a Typology

Information grounds caught on, particularly with Fisher and her associates; between 2004 and 2007 Fisher was part of at least seven publications on the theory and concept. Six of these did not substantially contribute to the theory's development; the seventh, however, did. Fisher, Landry, and Naumer (2007) had conducted a study of 729 college students, a project ongoing since fall of 2004 (see Fisher & Naumer, 2006, p. 102). As one might surmise from the large sample size, this study did not use ethnographic methods; instead it had developed a survey questionnaire to be used by LIS graduate students to ask questions of students on a college campus (Fisher et al., 2007). The questions asked what information grounds the students visited, what types of information they obtained there, and why these grounds provided for good information flow. The development of this survey was a key turning point in the evolution and influence of the theory of information grounds; it allowed it to be applied to much larger sample sizes and with greater ease than ethnographic methods. Analysis of the survey was still not a cakewalk, however; most questions were open-ended and intended to provide sufficient context to continue the conception of information grounds as social constructions.

The study was also influential and significant because it developed a typology of categorical characteristics of information grounds. This typology, based on the findings of this and previous information ground studies, was broken into three categories of characteristics: people, place, and information (Fisher et al., 2007). People characteristics included membership

size, membership type, familiarity with the people and the ground they occupied, actor roles and social types, and the motivations for visiting the ground. Place characteristics included the focal activities taking place at the ground, the conviviality of the atmosphere, the creature comforts of the environment, the location and permanence of the ground, the perceived level of privacy, and the ambient noise level. Finally, information characteristics included the significance and importance of the information shared, the frequency given topics were discussed at the ground, how information was created and shared within the ground, and the level and types of topics of information shared. The college students deemed these information-related characteristics to be the most important for determining whether an information ground was “best” and for making information easier to share. Future research was suggested into roles and social types, motivation, and location and permanence, as well as on the variety of information grounds, their life cycle, the social exchange and construction of information in information grounds, and affective factors and their role in the theory.

Clearly, Fisher et al.’s (2007) article reflects a maturing theory; the propositions suggested earlier were used, findings of multiple studies were drawn upon, and research moved beyond exploratory qualitative research to survey instruments and typologies. However, some have argued that this turn away from observation and interview-based research took the theory away from its roots (Prigoda & McKenzie, 2007). The college student study therefore represents a key point in the evolution of the theory of information grounds, in its influence in information behavior research, and in its potential applicability to a wide range of contexts and situations. At the same time, the study and the development of the typology were still clearly exploratory in nature, especially given the numerous directions suggested for future research. Indeed, Fisher and others were already exploring other possibilities for the theory, including a return to purely qualitative methods.

Integrating Theories and Tweens

Meyers, Fisher, and Marcoux’s (2009) study, part of a larger National Science Foundation (NSF)-funded grant, had begun in 2005 (see Meyers, Fisher, & Marcoux, 2007, which presented methodological notes on the study); nevertheless it was not published until after the college student study discussed above. Although it is very recent, it is a key, influential study for one major reason: its integration of multiple theories and frameworks in one study of everyday-life information behavior. Dervin’s (1992) sense-making timeline interviews, Chatman’s theory of normative behavior and associated concepts (Burnett, Besant, & Chatman, 2001), Harris and Dewdney’s (1994) principles of information sharing, similar principles put forth by Case (2007), and Fisher’s theory of information grounds were drawn upon. It was the first time that information grounds were considered alongside so many other theories and frameworks; this is indicative of the theory’s maturity and growing influence on information behavior research.

Meyers et al.’s (2009) study examined the everyday-life information behavior of “tweens,” youth between nine and thirteen years old. The “Tween Day” methodology (see also Meyers et al., 2007) was developed for this study, consisting of focus groups, information design activities, and individual interviews, with frequent breaks and movement between activities to keep tweens interested. The results as presented painted a picture of the types of everyday information tweens felt they needed, how they sought this, the barriers they faced, how they

managed this information, the criteria they used to assess and share it, the role played by different social types in their information behavior, and the role of information grounds in their everyday lives. The researchers presented a number of principles, based on their findings, which were intended as “a guiding framework” for library and information services to tweens (p. 331). The depth of these findings and of the theoretical framework employed is significant; although not so claimed by the authors, this study can be seen as the first information grounds study to be thoroughly descriptive, moving beyond the exploratory label typically applied to prior studies. It also shows how Fisher and her colleagues have recently moved beyond simple evolution of the theory of information grounds to consideration of it in the context of other significant theories of social, everyday-life information behavior. As such, the theory’s influence on information behavior research is clearly still growing. The next section briefly reviews other, less influential applications of information grounds by Fisher and her colleagues.

Category 2: Other Applications by Fisher

Fisher, Marcoux, Miller, Sánchez, and Ramirez Cunningham (2004) studied new and recent immigrants from Mexico who were working as migrant farm workers in the Pacific Northwest’s Yakima Valley area. Both the information habits and information grounds of the immigrants were examined, guided by two in particular of Harris and Dewdney’s (1994) principles of information sharing: interpersonal sources are usually favored over institutions or organizations; and one’s own experience is reviewed first, then the experiences of people like oneself. Fisher’s theory of information grounds was also applied. Interviews and observations of the farm workers were conducted, augmented by interviews with staff of Community Technology Centers (CTCs, educational facilities for migrant immigrants) and analysis of CTC reports. Significant barriers were found to the migrants’ information seeking in everyday life, most drawing from social types. Findings on information grounds were somewhat limited, but did identify the most common information grounds, why the immigrants felt they were good places for obtaining information, and what they learned through them. The study is one of the earliest to explicitly consider information grounds alongside other theories and concepts, and shows the beginning influence of information grounds on information behavior research and its application within an everyday-life, immigrant-focused context.

Fisher, Naumer, Durrance, Stromski, and Christiansen (2005) presented preliminary results of a telephone survey / structured interview of 612 residents from the east side of King County, Washington, completed in partnership with the United Way. Like the immigrant farm workers study discussed above, both Harris and Dewdney’s principles of information sharing and Fisher’s theory of information grounds were included in a theoretical framework, eight questions covering these in total. The information grounds questions were open-ended, while the information sharing questions had fixed responses. Results indicated the most popular information grounds by gender and income, as well as the reasons information grounds were found most useful: the people they brought together, their overall diversity, and “the quality of the experience” (“Information grounds” section, para. 5). Although the findings were preliminary and exploratory, they are notable for four reasons: (a) information grounds was, again, considered alongside another theory; (b) the authors suggested a typology could be developed in future research, a task completed by Fisher et al. (2007); (c) this was the first study to test information grounds with a large population using a quantitative, survey / structured interview

method, thus showing a change in approach from purely qualitative; and (d) a few respondents mentioned online information grounds, albeit the authors did not explore this (yet).

Fisher and Landry (2007; Landry & Fisher, 2007) conducted a study—part of the same NSF grant as the tweens study—of the information behavior of 20 stay-at-home mothers. They took an affective approach to examining their information worlds, employing unobtrusive observations and semi-structured interviews. As with the tweens study (Meyers et al., 2009), multiple theories were used to inform methodology and analysis; Chatman's theories of information poverty (Chatman, 1992, 1996) and normative behavior (Burnett et al., 2001), Harris and Dewdney's (1994) principles of information sharing, Wilson's revised information behavior model (see Wilson, 1999, p. 257), and Fisher's theory of information grounds were employed. Although published earlier than Meyers et al. (2009), this book chapter and conference paper were not influential; between them Google Scholar indicates only one citation. Nevertheless, the findings develop a picture of stay-at-home mothers' information behavior as it relates to information grounds, as well as some of the differences with other populations; for example, the mothers deemed *people* the most liked and important category of the typology of information grounds (Fisher & Landry, 2007), whereas the college students chose *information* (Fisher et al., 2007). In addition, Fisher and Landry's study was significant for including a substantial affective component. It is another study that shows the growing influence and ever-widening application of the theory of information grounds.

Finally, Counts and Fisher (2008, 2010) conducted the first known study to apply the theory of information grounds specifically in an online setting. They examined the use of Slam, a social messaging system for cell phones, to see if it served as an information ground and to examine its "social and informational impact[s] on long-term uses" (Counts & Fisher, 2010, p. 98). The findings, employing an adapted version of the survey developed in the college student study (Fisher et al., 2007), showed that Slam did indeed act as an information ground and met most of the propositions of the theory (Counts & Fisher, 2010). However, the authors found that two of the propositions needed adjusting to fit online settings. Slam was often used for targeted information sharing and information flow was a primary activity, which went against propositions 2 and 4 respectively as identified by Fisher, Durrance, and Hinton (2004). Counts and Fisher (2010) proposed, first, that in online information grounds social coordination is more important than other forms of information sharing, and second, that information flow in online information grounds facilitates social interaction. This is almost a reversal of proposition 4 as stated by Fisher, Durrance, and Hinton (2004); in addition proposition 2 had possibly been violated by the latter's study as well. The authors suggested further research into online information grounds (using the updated propositions), their relation with offline information grounds, the disconnection between online and offline identities in information grounds, the lifecycle of information grounds, the role of social types in information flow, and the role of social capital (Counts & Fisher, 2008, 2010). It is possible that Counts and Fisher's study will play an influential role in future, as additional research explores online information grounds and how the theory may need to change to fit such environments. At this time, however, it is most significant as both an indicator of the widening influence of the theory of information grounds, and a data point in the continuing application of quantitative, survey-based methods to the study of information grounds.

Category 3: Review Articles

In 2005, Fisher co-edited the book *Theories of Information Behavior*, also contributing a chapter (Fisher, 2005) discussing her theory of information grounds. The chapter served primarily as a summary of the theory, drawing from Pettigrew (1999) and Fisher, Durrance, and Hinton (2004) to explain the theory to those who may not have read previous articles. Near the end, however, Fisher did give a long list of settings that, she claimed, information grounds had been shown to occur in (Fisher, 2005, p. 188). Unfortunately, there was little indication of which range of studies these information grounds come from, although it appears many were from the two studies (discussed above) that Fisher had completed recently (Fisher, Marcoux, et al., 2004; Fisher et al., 2005). The chapter also hinted at “future work ... [that is] deriving a typology”—eventually published as Fisher et al. (2007)—and suggested areas for future research on information grounds similar to those from Fisher et al (2007). As such, this chapter is significant, but only for showing the theory of information grounds had reached sufficient importance to be included in a book of information behavior theories—albeit one that Fisher herself co-edited—and in providing a readable introduction to the theory for those unaware of it.

Fisher also co-authored (with Naumer) a chapter in the Spink and Cole-edited book *New Directions in Human Information Behavior*, published in 2006. In this chapter (Fisher & Naumer, 2006), the authors provided a useful overview of information grounds research up through 2006, including the first published account of the college student study later published as Fisher, Landry, and Naumer (2007). An important element of the chapter was an identification of some of the influences on the theory, although unfortunately (a) it was not clear which were original influences and which had been identified and incorporated later; (b) not all influences that can be found in Fisher’s early studies (Fisher, Durrance, & Hinton, 2004; Pettigrew, 1999) were mentioned; and (c) some non-influential sources were also cited, which were likely direct influences on Naumer but have not been very influential on the theory of information grounds or indicative of its influence on information behavior research.

Another important element of Fisher and Naumer’s (2006) review was a section discussing research that was in progress at the time of publication. Many of these were smaller studies for University of Washington students’ undergraduate or master’s theses and doctoral dissertations, examining the information grounds of Seattle’s Polish community, software to support and facilitate information grounds at coffee shops (which predates Counts and Fisher, 2008, by two years), Seattle’s Pike Place Market as an information ground, and the creation and maintenance of an information ground by a non-profit health services and advocacy organization. However, thorough searches of Google Scholar, LISTA, Library Literature, and the UMI Dissertations database do not turn up publications or finished dissertations or theses for these studies. Of the others, McKechnie and McKenzie’s (2004, as cited in Fisher & Naumer, 2006) study of baby story time programs as information grounds was presented at Library Research Seminar III, but does not appear to have been published elsewhere and the conference did not publish proceedings. Two studies were published after the chapter’s publication: the tweens study (Meyers et al., 2009) and the stay-at-home mothers study (Fisher & Landry, 2007; Landry & Fisher, 2007). The unpublished studies may have been influential on Fisher or her colleagues at the University of Washington and University of Western Ontario, and should be considered indicative of the theory’s growing maturity and broad applicability.

More recently, Savolainen (2009) took a different approach to reviewing information grounds as a research stream, comparing and contrasting it against Chatman's small world stream of research as culminated in her theory of normative behavior (Burnett et al., 2001). He focused on the spatial and social factors of each theory, arguing that both required their intertwining, but that in small worlds they produced "a predominantly constraining context" (Savolainen, 2009, p. 44). In information grounds, on the other hand, he argued that "contexts that invite the sharing of information with copresent people and seek it from them as well" are produced (p. 44). Small worlds, Savolainen argued, are restricted by their basis in the differences between insiders and outsiders; as such they have lost relevance due to treating the "contexts of everyday action in terms of little boxes," a framework outmoded in present-day society (p. 44). Information grounds are better suited, in his view, to the study of broader, more "diffuse ... social networks" (p. 44). Savolainen's article is significant in how it compared the work of Chatman—one of Fisher's major influences—and how it has evolved with Fisher's own theory of information grounds and how *it* has evolved. Unfortunately, Burnett and Jaeger's more recent development of Chatman's theory of normative behavior into their theory of information worlds (Burnett & Jaeger, 2008; Jaeger & Burnett, 2010)—at least partially intended to move beyond the "little boxes" limitations of small worlds—is only briefly mentioned by Savolainen. Despite this, his article is indicative of the fast-growing influence of the theory of information grounds within the everyday-life information behavior literature, to the point of potentially displacing Chatman's theories in the mind of one of its foremost researchers.

Category 4: Broadening the Theory's Coverage

Besides the review article of Savolainen, there have been quite a few recent studies and publications by other researchers which have applied the theory of information grounds, either confirming its findings or broadening its coverage in significant new directions. While none of these, as of yet, have significantly developed the theory, the latter in particular show the theory having significant influence in areas outside those Fisher has focused on herself. This latter category will be explored first, followed by confirmatory research; literature from both categories (and Savolainen's review article from category 3) is summarized in Table 1 (next page).

Knitting Groups

While knitting groups, in and of themselves, are perhaps not a surprising candidate for information grounds, it is the approach to such a study taken by Prigoda and McKenzie (2007) that was more unusual. Their theoretical framework was based in a collectivist perspective, also termed "social *constructivism*" (see Talja et al., 2005). It does agree with social *constructionism* that the world is socially constructed, and both focus on information practices in social contexts; however the emphasis in collectivism is on information practices within groups and communities, rather than the creation of information and knowledge through discourse practices. Prigoda and McKenzie (2007) argued that information grounds "as it [was] currently articulated [was] framed in *constructivist* assumptions" (p. 110; emphasis added), a third camp that is much closer to the cognitive and individual-based research of the past. This, of course, disagreed with Fisher's original placement of her theory in a social constructionist context (Pettigrew, 1999), but reflected the changing nature of information grounds research at the time. While the theory of information grounds was not specifically used by Prigoda and McKenzie (2007), it did

	Category	Pettigrew, 1999	Fisher, Durrance, & Hinton, 2004	Fisher, 2005	Fisher & Naumer, 2006	Fisher, Landry, & Naumer, 2007	Topic and significance
Savolainen, 2009	3	✓	✓	✓	✓		Relationship between Chatman’s small worlds / normative behavior and Fisher’s information grounds; argued former is more restrictive and limited. Compared one of Fisher’s influences, and how it has evolved since, with her theory of information grounds and its evolution.
Prigoda & McKenzie, 2007	4	✓			✓		Information behavior in public library knitting group; simultaneous shaping of knitting group, information practices, and context. Explored information grounds in context of social constructivism.
Bossaller et al., 2008	4					✓	Usability evaluation; professional conference as information ground. Broadened potential applications of information grounds to an unusual area.
Kelder & Lueg, 2009	4	✓		✓			Formation and advertisement of ad-hoc information grounds for breast cancer awareness (via the color pink).
Lin, Eisenberg, & Marino, 2010	4	✓					Looked at Second Life and how it shares many of the characteristics of an information ground. Applied information grounds to a virtual, online environment and to scenario-based system design.
Srinivasan & Pyati, 2007	5		✓				Diasporic information environments (and grounds) for immigrants. Applied information grounds concept within another IB model, but has had limited influence.
Savolainen, 2008	5		✓				Motivation for information giving, reciprocity. Confirmed variety of temporal settings and contexts for information grounds; promise of future research.
Williamson & Asla, 2009	5			✓			Information behavior, information literacy of older (“fourth age”) people. Presented information literacy in context of information grounds, but findings primarily confirmatory.
Williamson & Roberts, 2010	5	✓	✓			✓	Role of information, information sharing, and information grounds in developing and sustaining a sense of place and belonging. Continued focus on everyday-life information seeking and the study of information grounds as important places for satisfying social information needs and for social information sharing.

Table 1: A summary of the literature authored by other researchers.

substantially inform their study and was used as a point of comparison for the collectivist framework they applied and the results they obtained. The researchers significantly argued that the knitting group, its information practices, and “the complex context” surrounding them mutually and simultaneously shaped each other, being “constituted by and constitutive of one another” at the same time (p. 110). The authors also believed that studies of information grounds

should go beyond surveys and typologies—as had recently been pursued by Fisher at the time (Fisher et al., 2007; Fisher et al., 2005)—to exploring information behavior in socially constructed and constituted contexts. The study is thus also significant for and influential in noting the theory needed to swing back towards collectivism and social constructionism from the verging-on-cognitive-constructivism turn it had been taking, an approach that was taken by Fisher and others.

Conferences and Usability

Bossaller, Paul, Hill, Wang, and Erdelez (2008) presented a loose application of the concepts of information grounds in a previously unconsidered area: usability evaluation. They conducted usability testing of a state library consortium Web site using the think-aloud protocol, employing a professional conference attended by consortium members and many users of the Web site as the setting for the testing. They conceptualized this conference as an information ground, drawing upon the college student study by Fisher, Landry, and Naumer (2007) in considering it as “a place where people congregate with the specific purpose[s] of sharing information” and creating “connections [with] people who [they] might not otherwise see” outside of the conference (Bossaller et al., 2008, p. 251). The authors found the conference to operate successfully as an information ground and to work well—barring a few minor logistical issues—for the mobile usability study; enthusiasm was definitely generated amongst participants in the study and the usability testers alike. The study is significant for this unusual application of information grounds, albeit one that applies the theory loosely and does not draw upon any of the theoretical propositions suggested by Fisher, Durrance, and Hinton (2004). Indeed, Bossaller et al.’s study arguably flouts a couple of these; for example, is a conference organized for a primary purpose other than information sharing and exchange? Although it is perhaps too new an article to show substantial influence on the practice of usability testing, the unusual domain for applying information grounds shows that Fisher’s theory is influencing research on the periphery of the information behavior literature, not just core areas (e.g. everyday-life information behavior) that one might expect.

Advertising Ad-Hoc Information Grounds

Although it has only been published so far as a works-in-progress poster, a study by Kelder and Lueg (2009) has presented another interesting angle on information grounds. Their focus was on the establishment and advertising of ad-hoc information grounds as places and spaces for information sharing and exchange. They discussed how breast cancer community education work relies on the color pink—and the associated pink ribbon insignia—to establish dynamic, ad-hoc information grounds for interested individuals to learn more about breast cancer. This discussion and their arguments were based on their ethnographic case study of the information behavior “of a community education and recruitment officer working in breast cancer awareness information delivery” (“Introduction” section, para. 2). From conducting an interview with this officer and observing her activities, the authors found that the pink color of the tables and booths that the officer staffed attracted those of the target audience to obtain information and awareness “that [was] not directly related to the primary purpose of [those who were] attending these locations” (“Information Grounds” section, para. 5). While short on specifics—and the full paper cited as submitted for publication does not appear to have been published yet—Kelder and Lueg’s poster and the study it reports are still significant for their

treatment of the ad-hoc nature of information grounds and how they may be established and marketed further, a topic not yet discussed in the literature. Thus, the broadening influence of the theory of information grounds is again shown through their work.

Scenario-Based Virtual World Design

As noted previously, Counts and Fisher (2008, 2010) have explored information grounds in the context of an online social messaging service (Slam); other online environments could also serve as natural information grounds. Lin, Eisenberg, and Marino (2010) is the only other known study, however, to focus on an online setting and consider how it may be conceptualized as an information ground. They presented a brief analysis of collaborative information behavior in Second Life, a virtual 3-D online world and environment. Based on discussions with health librarians and educators, the authors provided a scenario of Second Life's use as an information ground ("Real Life Scenario" section): an exchange of virtual goods in the world led to a chance encounter with a "first life" health librarian, which then provided an opportunity for discussion and sharing of information about a relative's chronic disease. They suggested that information grounds could be used "as a context to discuss future research and design directions" for collaborative information behavior ("Using an Information Ground" section, para. 1), noting that new media like Second Life particularly need to address "awareness, common ground, and information fragmentation" issues ("Using a New Media" section, para. 1) that surround serendipitous information sharing. The paper is brief and cited only Fisher's original dissertation study (Pettigrew, 1999) as its source; therefore Lin and his colleagues did not discuss how the propositions later formulated by Fisher, Durrance, and Hinton (2004) could apply to Second Life (as Counts and Fisher did for how they apply to Slam). Nevertheless, the paper is still significant for applying information grounds to an online environment, and particularly for expanding its scope and influence to scenario-based system design for collaborative information behavior.

Category 5: Confirmatory Studies

Finally, four articles and papers that Fisher did not contribute to have applied the theory in a primarily confirmatory fashion, having less influence in themselves on other information grounds and information behavior research. Nevertheless, they are indicative of the use and influence of the theory of information grounds.

Srinivasan and Pyati's (2007) article was purely conceptual, with no empirical study being completed. It presented a proposed model for the study of immigrants' information behavior, building upon the work of Appadurai and Bhabha as well as Fisher's information grounds "concept" (as termed by the authors, p. 1739). The model was intended to pull together locally-focused studies with those that took a more global contextual approach; the authors argued both were necessary as foci. They suggested that the "locally and diasporically-mediated" information grounds used by immigrants—such as community centers, public libraries, restaurants, shops, and diasporic online communities and social networking sites—should be studied as information environments (p. 1740), and proposed methodologies for such studies including reflexive ethnography, social network analysis, community-based information services research, and community-based action research. The authors then briefly showed how their model could inform research in two case studies, one of Somali refugees in Boston and one of the Diwali (East) Indian festival. The article shows the greater acceptance and use of information

grounds, including in the context of the research of others. However, its treatment of information grounds is relatively loose and the topic quite narrow, with its influence beyond the authors and their close colleagues being minimal so far based on citation searching. Nevertheless, information grounds has had clear influence on studies of the information behavior of immigrants, particularly through Fisher's own studies but also through Srinivasan and Pyati's study.

Savolainen (2008) conducted a study of information giving—defined as “provid[ing] information to other people, proactively or upon request” (“Introduction” section, para. 3)—in environmental activists’ non-work settings, focusing on the aspect of reciprocity. He noted that information grounds were “particularly relevant for the study of information sharing” (“Literature review” section, para. 7), but unfortunately due to space limitations did not explore “the ways and contexts of information giving . . . in terms of information grounds” (“Empirical data and analysis” section, para. 3). Nevertheless, the findings supported the theory’s proposition that such grounds take many forms and occur in many different contexts and temporal settings, “predicated on the presence of individuals” (“Discussion and conclusions” section, para. 2). The study thus serves to help confirm that proposition and shows the potential for further work that does explore the contexts and motivations for information giving in terms of information grounds. It also shows—when combined with Savolainen (2009)—the influence the theory has had on a key information behavior researcher.

While information literacy had arguably been an undercurrent in many information grounds studies (such as Fisher, Durrance, & Hinton, 2004; Fisher, Marcoux, et al., 2004; and Meyers et al., 2009), Williamson and Asla (2009) were the first to apply information grounds—albeit somewhat loosely—to the study of information literacy for older people. They explored the information behavior, seeking, and needs of those in the “fourth age . . . characterized by illness, frailty, increasing dependence, and the imminence of death” (p. 77), examining the relationship between these and information literacy. The studies Williamson and Asla reported on were not “pure” information grounds studies, but they did stress that those in the fourth age needed information grounds “since information often needs to come to” them (p. 80). The authors argued that naturally occurring information grounds—such as beauty shops, coffee hours, and socialization with key gatekeepers within the social networks of the elderly—need to be taken advantage of. In addition, they suggested artificial social gatherings could be created to stimulate the sharing of information via artificial information grounds. The article therefore shows the expanding reach and influence of the concept and theory of information grounds beyond Fisher and her associates, although its findings are mostly confirmatory of the theory’s applicability to a different population than indicative of a new direction for or unique application of the theory.

Williamson also conducted a second study that employed the theory of information grounds, this time working with Roberts to examine how people develop and sustain a sense of place and belonging and the role information, information sharing, and information grounds play in this (Williamson & Roberts, 2010). In this study, the authors used Moore’s model of social information needs in everyday life as the focus of their theoretical framework, exploring “the role that social information can play in assisting people to (a) begin life in a new place or (b) live a fulfilled life in a place that has been familiar” to them already (p. 282). They focused on the city of Darwin in northern Australia due to its relatively small size, high population turnover,

remoteness, and other unique features. Through a multi-phase study including surveys and interviews of Darwin residents, Williamson and Roberts found interpersonal information sources to be the most common source for information about the city. Darwin's Mindil Beach Market served "as a natural information ground" (p. 283), used "both [as] a way of information exchange and ... a way of fostering community participation" (p. 285). Word-of-mouth and social networks were thus important in fostering information exchange and a sense of belonging. The researchers suggested these processes could be enhanced by taking advantage of Darwin's natural information grounds to distribute and promote information about the city and its community. Williamson and Roberts's study applied information grounds to another area within information behavior research, showing the theory's continuing influence. While having some degree of uniqueness, it fits best in this category because it continues the emphasis on everyday-life information seeking that is common in much information grounds research, confirming the theory's usefulness as a method for studying the social information sharing that occurs in places and spaces.

Conclusions

As the above review shows, Fisher's theory of information grounds has clearly had substantial influence on information behavior research. A major theme that stands out in the evolution of this research is the use of quantitative vs. qualitative methods, and the debate between social constructionism, constructivism, collectivism, and other epistemologies that underlies this. Fisher's original dissertation research (see Pettigrew, 1999) used ethnographic observations and drew most prominently upon social constructionism as her chosen epistemology. Later research included semi-structured interviews, continuing the use of qualitative methods. However, Fisher then instead developed a survey questionnaire—albeit one with many open-ended questions—that could be used with larger samples, developing a typology of information grounds from the results (Fisher et al., 2007; see also Fisher et al., 2005). As such, it could be argued—and was by Prigoda and McKenzie (2007)—that information grounds research was veering off course from its original social constructionist, qualitatively and ethnographically focused conception. However, Fisher returned to ethnographic and qualitative methods (Meyers et al., 2009) while continuing to further apply the survey developed in alternate settings (Counts & Fisher, 2008, 2010), showing that both approaches had merit. Other researchers also applied the theory using a variety of methods and epistemologies, although most focused on the use of qualitative methods. This shows that the strongest influence of the theory of information grounds has been on qualitative, social constructionist information behavior research; however, it has also had some impact on qualitative research from other epistemologies and on quantitative research. Mixed methods—incorporating both quantitative surveys and qualitative observations, interviews, and/or focus groups—would likely produce further insightful findings, but do not appear to have been applied in any one information grounds study as of yet. The use of multiple methods by Meyers et al. (2009) does indicate the possibility of Fisher and her colleagues adding surveys to this mix in the future, however.

Another major theme is the incorporation of multiple theories and influences in studies, as also evidenced by Meyers et al. (2009). While in some ways this is a recent trend, arguably it goes back all the way to Fisher's original dissertation research (Pettigrew, 1999). There, she was clearly influenced by the work and theories of multiple researchers, including Tuominen and Savolainen's (1997) treatment of social constructionism, Dervin's (1977, 1992, 1997)

sensemaking and treatment of information as communicative activity in context, Chatman's (1992, 1996) information poverty and approach to ethnography and theory development, Harris and Dewdney's (1994) principles of information sharing and research on information habits, and Granovetter's (1973, 1982, as cited in Pettigrew, 1999) theory of the strength of weak ties. Even in its early stages, the theory of information grounds cannot be considered in isolation; it must be considered in light of the other information behavior, information science, and social science research that Fisher was aware of and drew upon when conceiving of her theory. Later studies would draw back in some of these influences (see Figure 1), particularly Harris and Dewdney's principles, Dervin's sensemaking, and Chatman's later work on her theory of normative behavior (Burnett et al., 2001). While Savolainen's (2009) comparison of Fisher and Chatman's theories may leave out recent extensions to the latter's work, the theory of information grounds' continued drawing on multiple streams, theories, models, and frameworks within information behavior research has inarguably provided it an especially high degree of usefulness and potential broadness of applicability. The mutual and simultaneous shaping that Prigoda and McKenzie (2007) found to be true in the knitting groups they studied also is taking place between information grounds and information behavior research in general; each is continuously shaping and influencing the other.

It remains to be seen how the theory of information grounds evolves and where information behavior research is taken as a result. Further exploration of virtual settings as information grounds is one possibility; Counts and Fisher (2010) may prove to be a key development or may instead serve as a "dead end" for the theory. The work of Prigoda and McKenzie (2007) may serve as a clarion call for a new perspective on the theory and its use, or be seen as an attempt to narrow the theory's potential as it begins to be used outside its original methodological and epistemological context. Information grounds may also find substantial use in usability testing (Bossaller et al., 2008), information marketing endeavors (Kelder & Lueg, 2009), or scenario-based design (Lin et al., 2010), as well as other areas of information behavior and information behavior-related research. The clearest potential evolution of information grounds and its influence, however, comes yet again from the study of Meyers, Fisher, and Marcoux (2009). A continued incorporation of multiple theories, models, and frameworks of information behavior, with a focus on information grounds, can only help to better explore and describe the information seeking, uses, needs, actions, practices, and behaviors of populations of interest. With continued work drawing from information grounds and other theories, information behavior research will be better equipped to understand and explain these, and thus better answer the questions of research and practice that have driven and continue to drive its development and evolution as a field.

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