Relationships between information seeking and context: A qualitative study of Internet searching and the goals of personal development

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Abstract

Little research has explored how exactly information processes relate to their context. Context is defined as all those things which are not an inherent part of information phenomena, but which nevertheless bear some relation to these. This article addresses the issue by discussing empirical findings from a study on Internet searching and personal development. The purpose of the article is to construct a general typology for researching the links between information seeking and its context. Grounded analysis of the whole corpus revealed 11 different relationships between Internet searching and the goals of personal development. Because these seem to be quite generalizable to information seeking in other contexts (e.g., parenting or location), too, they were then abstracted into four generic relationships: detachment, unity, direction, and interaction. The classifications are offered as tools for understanding information seeking more contextually and for conducting further research in this area. © 2007 Elsevier Inc. All rights reserved.
1. Introduction

1.1. Background

The activity of searching for information in the Internet, particularly the World Wide Web, has been the object of much research during the last 10 years. As Rolston (1987) explains; however, it is not enough to know events in themselves, but their function in the larger process has to be examined, as well. From the human perspective, exploring the roles of the Internet is imperative if one aspires to genuinely understand real-life Web information seeking.

Is there such a thing as information seeking “in general?” While it is convenient for scholars to talk about information seeking as a universal, abstract phenomenon, in practice, one cannot seek information “in a vacuum” (Case, 2002, p. 226), outside reality. It is now commonly agreed that information seeking is inextricably interwoven with context—they can be separated in scientific analysis, but not in real life (see Sonnenwald & Iivonen, 1999). Context is pivotal for comprehending all sorts of information processes (e.g., organizing, providing, and seeking information), so consciously selecting and theorizing about context should be one of information scientists’ top concerns. It is something of an oddity, then, that there has been very little research on how exactly information processes relate to their contexts (Chang & Lee, 2001).

Defining the concept of context has proven to be quite a challenge, like trying to “tame an unruly beast” (Dervin, 1997). This difficulty is reflected in the numerous characterizations of context and contextual factors of information seeking (see e.g., Johnson, 2003; McCreadie & Rice, 1999; Sonnenwald, 1999). In the humanities, it has been common to talk about context simply as factors outside a text (see e.g., Mills, 1995), determining its interpretation. When this idea is transferred to the discipline of information studies, one can say that the reality which information scholars research in principle consists of only two kinds of phenomena: information phenomena and context. According to a very general definition, then, context means any background for information phenomena (see Johnson, 2003; Talja, Keso, & Pietiläinen, 1999). Context is all those things which are not an inherent part of information phenomena, but which nevertheless bear some relation to these. Without context, information phenomena lose their meaning.

A number of typologies and models of context have been proposed in the information science literature (e.g., Ingwersen & Järvelin, 2005; Johnson, 2003; McCreadie & Rice, 1999). Ingwersen and Järvelin (2005), for example, discuss a nested model of information retrieval whose layers are (from the core to the surface) as follows: (1) intra-object structures; (2) inter-object contexts; (3) interaction context; (4) social, systemic, media, work task, conceptual, and emotional contexts; (5) economic, techno-physical, and societal contexts; as well as (6) historic context. The present study is set in one specific context—personal development—which extends to the domains of both work and leisure. In Ingwersen and Järvelin’s model, personal development could be manifested at any level from 1 to 6. A similar mapping would be possible with any contextual framework. The point is that context can be subdivided and restructured almost infinitely into (sub)
contexts, but there is no need for the current paper to commit to any predefined categorization.

This article postulates that parallel to the evolving information environment is the human being, who is in a process of becoming better. If one accepts the view that development is a fundamental characteristic of living organisms (e.g., Deci & Ryan, 1985; Piaget, 1971), this sounds only natural. Especially in these times of rapid change, the continual developing of oneself has become a necessity (see Ostun, 1998). Development refers to more or less enduring (i.e., not temporary) change for the better (cf. Deci & Ryan, 1985). Personal development or growth means that an individual improves his or her own abilities, skills, knowledge or other qualities by working on them (see Maslow, 1968). Self-development is not a solitary phenomenon, but comes about through reciprocal interaction with one’s environment. It arises from one’s needs, and affects one’s behavior (Deci & Ryan, 1985). In the current research project, personal development represents not a type of action, situation, or domain (see ibid.; Lerner, 1998), but a process (see Magnusson, 1995) context that intersects with many other contexts.

“Development is much easier to understand when we know where it is going,” says Siegler (1983, p. 131). Its perceived purpose is presumably the aspect of growth that also possesses most motivational force. Some scientists (like Magnusson, 1995; Sroufe, 1979) affirm the holistic nature of self-development, and even deny the possibility of separate growth in any single aspect of the individual. Thus, the objective of personal development would be to attain one’s projected “ideal self” (Ostun, 1998, chap. 2). According to Deci and Ryan (1985), as well as Maslow (1968), it is therefore a matter of the individual actualizing his or her own potential. Progression like this can also be called maturation (see Ostun, 1998) or reaching one’s “human fullness” (Venkula, 1993, p. 62). Other scholars of development talk about one overall goal or end which the actor approaches by advancing on the steps of more concrete “growth phenomena” (Maslow, 1968, p. 197). It is also possible to view the person as a system with various levels or dimensions, which may develop (Lerner, 1998). For instance, Grant (1998) stresses the evolution of consciousness, the ultimate goal of development being the state of enlightenment. At any rate, perfection cannot be achieved with information alone (Venkula, 1993), nor is mere knowledgeability a sign of completeness (see Grant, 1998).

1.2. Problem statement

The purpose of this article is to construct a general typology for researching the links between information seeking and its contexts. The value of the study lies in its discovery of many relationships, as well as in its promotion of understanding information seeking more contextually. Some narrow studies (Hart, Henwood, & Wyatt, 2004; Williamson, Schauder, Stockfield, Wright, & Bow, 2001; Wong, 2003) have been conducted in this area, but they have not discussed theoretical issues in any breadth. As far as information seeking is concerned, it seems there has been no systematic research on all the parts that networked services in themselves play in people’s activities, leaving much of the relationship between Internet searching and its contexts largely unexplored. This
empirical, mainly qualitative study explores the question, “What kinds of relationships are there between individual developmental objectives and information searching via the Internet?”

2. Literature review

2.1. Relationships between information seeking and context

The only known empirical study that has systematically analyzed the relationships between information processes and their context in gross is reported in an article by Shan-Ju Chang and Yu-ya Lee (2001). Their findings were based on multiple forms of data—deep interviews, work diaries, personal documents, as well as questionnaires—collected from eight researchers in Taiwan. According to the results, the connection between “information behavior” and context can be one of three kinds: association, interaction, or one directional. Association is defined as the concurrence of certain information behaviors in a situation. Interaction means that the context first influences information behavior, and this behavior in turn alters contextual factors. The one-directional relationship refers to the context encouraging, affecting, determining or preventing some information behaviors.

The Internet has evidently become an integral part of people’s everyday life (see, e.g., Hsieh-Yee, 2001; Rieh, 2004). Information scholars typically see that network as a communication tool, information source, and channel for disseminating information (Klobas & Clyde, 2000; Wang, Hawk, & Tenopir, 2000; Wong, 2003). On the other hand, actual research on the roles of the Internet and its relationships with context remains scarce.

In one of these inquiries, Hart and others analyzed “the role of the Internet in patient–practitioner relationships.” For this British study, the researchers interviewed and observed 47 patients and 10 practitioners in health care about their Internet usage. According to “a popular discourse in the literature on health and the Internet,” a transition from practitioner-centered to patient-directed consultations was being precipitated by the network. Hart and the others remark that the Internet may be just one information channel behind this reversal. Most of all, their own study provided evidence of the Internet’s symbolic role, “in drawing attention to the patient–practitioner relationship and throwing the issues of authority and trust into sharp relief” (Hart et al., 2004, quotes from Section 5).

Williamson and her colleagues studied the role of the Internet for sight-impaired people. They interviewed and held focus groups with a total of 31 Australian individuals,
including both blind persons and professionals who work with them. The Internet enabled
the visually handicapped to participate in the virtual community, and to access information
in a new format. The network thus functioned as a furtherer of social equality. In addition,
catering for recreational interests was a major part played by the Internet (Williamson et
al., 2001).

The Internet and the “Chinese diaspora” is the theme of an essay by Wong (2003). As a
general observation, he notes how disempowered people “are able to publish their views and
claim their identity through the Internet” (Conclusion). Advocates of cybercommunities
argue that information and communication technologies offer “an alternative information
and relation network enabling relation-ness and connectivity” between its participants.
Wong seems to accept this stance and writes that cyberspace allows diasporic communities
“to transcend their isolation, their nostalgia, their displacement and their pain of
dislocation.” Correspondingly, emigrants’ Internet activities enable “a sense of continuity,
familiarity, communality and community” (Wong, 2003).

These studies show that the Internet has several roles, but the findings are so scattered that it is
difficult to get any kind of overall picture of the phenomenon. At most, one can confidently
say that the Internet promotes equality among people and enables them to do things that would
be difficult to realize without networked services. Thus, it is necessary to broaden the review
while making it more concise. Prior research has found that

• context (e.g., attitude, cognitive factors, computer anxiety, discipline, expertise, gender,
  meta-cognition, social factors, task) affects Internet use (e.g., frequency, gratifications
  obtained, navigational style, search performance, search process, time spent online, types of
  behaviors) (e.g., Johnson & Kaye, 2003; Kim, 2001; Klobas & Clyde, 2000; Light, 2001;
  Nahl, 1998; Tewksbury & Althaus, 2000; Wang et al., 2000);
• context (e.g., domain knowledge) interacts with Internet use (e.g., Web expertise)
  (Hölscher & Strube, 2000);
• context (e.g., lack of time) obstructs Internet use (Pivec, 1998);
• context (e.g., beliefs, gratifications sought) predicts Internet use (e.g., gratifications
  obtained, Web use) (Tewksbury & Althaus, 2000); and
• Internet use responds to context (e.g., information needs) (Perse & Ferguson, 2000).

2.2. Personal development in information studies

In information studies, there has also been little research related to personal growth,
and the goals of development have been disregarded altogether. Klobas and Clyde’s
(2000) and Nahl’s (1998) work about learning to use the Internet, Dalgleish and Hall’s
(2000), Ford’s (2004), Kuhlthau’s (e.g., 1993), as well as Limberg’s (e.g., 1999) studies
of information seeking in the context of learning, as well as Maynard’s (2002) and
Newton’s (2001) research on training library staff all concern learning or teaching, which
represents just one perspective on individual growth (Ostun, 1998). In the educational
literature, there is an entire body of research that deals with information searching and
learning. Learning is only mentioned here as an exemplification from other disciplines. A
narrow focus on information skills is usually the gist of educational information research, as evidenced by the following examples:

- A core problem is how LIS [library and information science] can help people optimize their information-seeking behavior (Hjørland, 2000, p. 26).
- A person who has managed self-development is the one who can select not all but only that information he requires, not the old and invalid but new information (Ostun, 1998, Section 9).

Despite Ostun’s statement, his conception of individual growth is actually quite wide ranging. He thinks that persons’ will to attain their projected “ideal self” may induce them to seek information. The actors’ level of knowledge is another measure of their personal development. Consequently, “renewing himself with new information” is a variety of individual growth (Sections 1–2).

Empirical information studies that have even touched upon personal development as a whole are few in number. Dilevko and Gottlieb (2004) carried out a survey about workplace experiences with 33 staff members of “tribal college and university libraries” in Canada and the United States. They treated the possibility for individual growth as a significant part of work satisfaction. In their then job, the respondents expressed having developed psychologically/emotionally (17 informants; e.g., by becoming more relaxed and flexible), spiritually/culturally (17; e.g., through expansion of cultural or spiritual horizons), and professionally (16; e.g., in librarianship skills) in equal measure. While Dilevko’s and Gottlieb’s investigation included an illuminating foray into personal growth, they made no attempt to relate it conceptually to information phenomena: self-development was simply reported in the context of library work. It almost seems like the library was just another job environment, and the study might as well have been set in a finance department, for example.

In a study combining the interviewing and observation of 18 “ordinary persons” in Finland, Kari and Savolainen collected audio and visual data about their Internet use and Web searching related to self-development. The authors have reported on the types of Web pages and sites visited and the applied movement tactics, on the conceptions of the Internet, on the place of the Internet among other information sources, and on problems in Web searching (Kari, 2004; Kari, 2006; Savolainen & Kari, 2004a,b, 2006). The results are certainly a contribution to Internet research, but they neglect the role of the primary context (individual growth). Some findings are still worth mentioning.

Given the sphere of interest, the scarcity of viewed Web pages on the topic of human development appeared baffling. This observation, however, is probably explained by the participants’ tendency to focus on a specific, substantial aspect of self-development, rather than personal growth in general. In fact, the subject areas of the visited pages were spread among all ten categories of a universal classification scheme (Kari, 2004). It is natural that a major share of Internet use serving personal growth occurred at home because self-development primarily took place in the informants’ free time. Savolainen and Kari (2004a) also note that since an increasing number of sources and channels are competing for information seekers’ attention, they have to evolve abilities by which they can evaluate the
alternatives. Indeed, the repertoire of utilized information sources (other than the Internet, too) was considerable. This was interpreted as reflecting the broad range of interests involved in the issues of self-development (Savolainen & Kari, 2004b).

Information science somehow tends to presume that human beings—the originators of cultural progress—are not inclined to really develop (other than by learning). This is betrayed by the bare fact that no major information theory or model accommodates the whole of human development. It also shows in how seldom longitudinal studies with participants are conducted. Most directly, however, the bias is evidenced by the scarcity of published research analyzing informational activities in conjunction with personal development. The systematic searching and monitoring of the peer-reviewed literature in information studies provided ample evidence of this blind spot in the form of so few relevant publications.

3. Procedures

A grounded, qualitative mode of research is appropriate in this context, and entails digging deep into meanings to construct a context-sensitive picture from individuals’ perspectives. As mostly descriptive—like Hill and Hannafin’s (1997) work—the inquiry chiefly probes the study object in an inductive manner, allowing ideas to surface from the data. Such an approach will enable theoretical abstractions to be validly suggested. In so doing, however, one must realize that personal growth is simultaneously a subjective (King, 2002), culturally shaped (Oerter, 1986), and spatiotemporal (Lerner, 1998) phenomenon by nature. Of course, the same is true with information searching, too.

3.1. Participants

The research effort was centered on individuals who were sufficiently motivated to go through the various phases of the investigation (see Savolainen, 1998). The researchers looked for persons who were interested in developing themselves, and who also used the Internet in connection with it. For practical and financial reasons, it was sensible to limit the dispersion of the informants to one Finnish province, for the study was performed in its capital. The only option was to seek out volunteers from a number of quarters in the hope of reaching at least some degree of coverage (cf. Rieh, 2004). Considering the theme of the project, “Self-development and Internet use,” the Internet was deemed to be the best vehicle in contacting possible participants. Therefore, a notification about informants wanted was sent by e-mail to the local public library, adult education centers, and a computer club for senior citizens (altogether five organizations). These organizations forwarded the message to their own people, as well as put the investigators’ hyperlink on their Web sites.

As a result, 18 individuals agreed to take part in the research. Their willingness to go along was interpreted as a sufficient indication of their interest in personal growth. Because authenticity is a central element in the project at hand, the authors endeavored to study each participant on his or her own terms (i.e., where and when they wanted). Given this freedom of choice, it was a surprise that a preponderance (15) of the recruits opted for the researchers’
department facilities, whereas two informants selected their home, and one preferred his workplace. The research space at the university was a standard meeting room that was furnished with a computer (connected to the Internet) and video recording apparatuses for the purposes of this inquiry. On the other hand, if an individual wanted to perform a Web search somewhere else, the immobility of the video equipment prevented screen capturing on-site. Because video data were not crucial to the current report, the three “dissidents” were included here.

Only one third (6) of the 18 informants were male. The authors have found this bias towards women in their other empirical studies, as well, but they have not been able to find the reason for the imbalance. The informants represented all age groups between 10 and 70 years, their average age being 38 years \((n=17)\); the number of observations fluctuates here, because some participants did not answer all of the questions). The educational distribution of the subjects did not come as a surprise: one of them had no degree at all (since he was still in the primary school), one had just a basic degree (from the secondary school), nine had an intermediate (college, upper secondary school, or vocational school) degree, and five had a higher (university) degree \((n=16)\).

The participants’ occupational status was such that seven individuals were studying, five were working, and five did neither of those \((n=17)\); two of these were unemployed, one was a pensioner, another was on vacation, and the last person was a housewife. The high proportion of students could be explained by the recruitment channels used. The partakers’ Internet experience varied between 2 and 16 years, with a mean of 6 years. It did seem that both novice and expert searchers were rare in this group, most being average users. This conclusion is based on the distribution of the year count, but also on the authors’ observing how the informants searched the Web for information (see below).

### 3.2. Data collection

The main part of the data was collected during November 2001–January 2002. Following the example set by the bulk of earlier Internet studies (e.g., Hawk & Wang, 1999; Rieh & Belkin, 1998), this investigation wielded multiple methods of data collection, for different research questions demanded different procedures. Interviewing was the core technique, covering the context of Web information seeking. The real-time scrutiny of Web interaction, in turn, necessitated observation (by the scholar) and thinking aloud (by the participants). Wherever a Web session took place, the partakers always had the liberty to select any available browser program they wanted, and carry out the search as they saw fit, on a subject of their own. There was no real time limit, either. The sole restriction was that the search topic had to concern personal development. The protocol for gathering the data included five different phases:

1. Primary interview: charting the general orientation of a partaker’s self-development, Internet use, and Web searching;
2. Pre-search interview: probing the situation, information needs, and information sources that led the participant to search for information on personal development in the Web at that moment;
3. Observing and thinking aloud: studying an actual Web search as it happened;
4. Post-search interview: debriefing the informant about his or her search results; and
5. Final interview (by telephone): inquiring of the partaker how the material—treating of the agreed-upon theme—that she or he had found in the Web since the (first) joint search session with one of the authors had affected the situation (which was asked about in phase 2).

Standard procedure involved gathering data from a participant in a linear fashion, so that stages 1–4 (above) were administered consecutively on one day, and the last step was taken a week after this. What constituted “self-development” was ultimately left to the participants to decide (one of the interview questions actually probed what the informant means by personal development), so no external, strict definition was imposed on them. The researchers’ and the respondents’ conceptions of individual growth appeared to be broadly alike, so its interpretation did not cause difficulties. The interview guide included 68 mainly open-ended questions, of which the ones in the Appendix appertain to the topic of this article.

The Web searches were used to provide more concrete and situational information about the research subject than that obtained through the interviews. The same level of detail could not have been achieved without having the participants do a search. However, the principal role of the searches was demonstration; it was not expected that a single search session would generate notable personal development. In the Web search phase, one of the researchers sat next to a participant, monitoring the search process. To keep the informants talking, it was at times requisite to ask them a spontaneous question (like “Why did you follow that link, and not some other one?”) pertinent to their activities in the Web. When a partaker came to the investigators’ Web chamber, the search session was also captured on videotape. This was enabled by a computer-to-TV converter, which had been inserted between the PC and its monitor. A microphone was also attached to the videocassette recorder, which arrangement synchronized the events on the computer screen with the searcher’s speech.

3.3. Data analysis

All empirical material was then transformed into computerized text. The data processing involved transcribing the audio recordings, as well as logging the taped video films manually (see Hill & Hannafin, 1997). All available data from the participants was included in the corpus to be scrutinized. The major methods of analysis were qualitative content analysis (as in, e.g., Rieh, 2002) and classification. Trying to detect and make sense of every concurrence of Internet searching and a goal of personal development was the first priority. Therefore, networked information seeking without such an objective, for example, was irrelevant:

Researcher: How does it [loading games from the Internet] happen?

Lauri [one of the informants]: Well they [friends] like apparently retrieve some piece of information from somewhere or else just type ‘www.’ and then the name of the game and then ‘.com.’ E.g. Or else from some link they go or else from some search server. (Macro [data set] 187–191 [text units]).
One might with good reason ask, “What counted as Internet searching and a goal of personal development?” Internet searching included seeking and finding information by means of the network, but also Internet use as a more generic activity. After all, searching is a central facet of utilizing networked services. A goal of personal development often referred to an ideal level of maturation in some respect that could or should be pursued. Alternatively, the participants would say that someone (usually they themselves) had not evolved enough or yet to reach a growth objective, had attained a desired standard, or had exceeded an optimal level of development. The goals were not anticipated from earlier literature, but emerged from the data. What the Internet searching and developmental targets were like was not at issue here; the analysis strictly focused on their interrelationships. When the pertinent passages in the data had been identified, each expression of a relationship between the Internet and growth was carefully examined and categorized.

Of course, there was no comprehensive and specific typology of the relationships; it had to be constructed on the basis of the data as the analysis went on. Every effort was made to form the various types in such a way that they would be mutually exclusive. The process was solidified by coding the material in NUD*IST 4, a computer program for qualitative analysis. The 117 codes were totally grounded on the data. For the most part, they dealt with developmental processes, the goals of personal growth, information phenomena in the context of development, as well as the relationships between Internet use and human growth. The connections identified in Findings (Section 4) were directly derived from the last set of codes. An independent category was formed whenever the relationship was clearly identifiable and distinct from the other relationships. After the first round of coding, the relevant data was double-checked to ensure that the coding was consistent throughout. The analysis became almost totally qualitative, because there was very little that could be legitimately quantified (see Section 3.4).

A total of 21 extracts from the partakers’ speech are utilized to illustrate and substantiate the findings. The quotations are accurate translations from the Finnish language. Precision means that in addition to being colorful, the samples are also quite colloquial, and not very pretty grammar-wise. Fictional names were used to protect the informants’ identities.

3.4. Quality

The validity of the research results was affected by a few factors, both negative and positive. It was weakened by the fact that several questions in the primary interview mentioned hobbies in connection with self-development, as if they referred to the same thing. This might have created some confusion—on the part of both the interviewer and interviewees—as to the intended context of information searching. Therefore, hobbies should not have been brought up at all by the investigator. Some of the interview material relies on the participants’ memory, being another potential source of errors. Furthermore, the Web searches were in most cases conducted somewhere other than in the participants’ natural environment, which likely influenced their interaction with the Internet. These shortcomings are above all compensated for by having collected the majority of the data in real time, thus avoiding pitfalls of
retrospection. The “artificial” approach is also balanced by grounding most of the analysis on the data. For this particular article, the hobby distraction may have decreased the amount of relevant data somewhat, but it did not actually interfere with the identification of individual growth in the analysis phase. Hence, the project should yield moderately valid findings.

It was not to be expected that the reliability of the results would pose serious problems, as the empirical material was gathered and analyzed quite systematically on the whole. However, the data collection stage exhibited one weakness: none of the questions specifically dealt with the relationships between Internet searching and the goals of personal development. Hence, all data had to be combed for any mention of such a combination of phenomena, which in the end did yield quite enough material for this report: 812 out of the combined pool of 38,254 text units (usually sentences). Double-checking the relationship coding was a necessary measure to boost the reliability (see Klobas & Clyde, 2000). One of the participants was a child (aged ten), which fact had to be taken into account when interacting with him. The investigators tried to express themselves in more interesting and simple language in order to induce the boy to cooperate and understand. Even so, his data were characterized by a marked difficulty in articulating his opinions, particularly about self-development.

It is almost a hallmark of both Internet usage (see Savolainen, 1998) and developmental (see Brandstädter, 1998; Lerner, 1998) research that the generalizability of the findings is rather limited. The results in this article cannot be quantitatively generalized at all, partly due to the small and self-selected sample, as well as the time lag of 5 years (between data collection and reporting). The main reason, however, is the fact that the data collection instruments were not designed to even-handedly gather material on all aspects of the Internet–development relationships. In retrospect, the questions were biased, for they encouraged the subjects to talk more about some connections than others. There is no dilemma here in principle because the authors’ sole aim in this case is the (re)construction of meanings and the building of a qualitative typology.

4. Findings

Eleven different relationships were discovered between Internet searching and the goals of personal development: affecting, associating, causing, concerning, connecting, enabling, exploiting, hindering, illustrating, isolating, and misleading. These connections are presented below (in alphabetical order) by disclosing their defining features and subclasses, as well as by illustrating them with one or two extracts from the data corpus.

4.1. Affecting

The relationship of affecting means that individual growth was reported to affect one’s interaction with the Internet, or Internet use was reported to affect one’s growth. The first
mentioned link manifests itself in the following example, where the participant surmised that evolving her skills and gaining more experience would improve search results:

Researcher: Well, why didn’t you find [the answers] then? […]

Hilla: There must be downright shortcomings in my abilities to read. So it must be when I get used to retrieving better, so then, it will then start going well. (Micro 796–798)

The Internet affecting development can be illustrated with a case in which having visited a Web site made it easier for the searcher to become familiarized with it:

Noora: So it’s good to like go there [the University of Turku Web site], now that I’ve already like visited there, like for the second time I set out to get to know [it], when I notice that ‘oh yeah, these were these pages’. (Micro 621)

4.2. Associating

When associating, the participants did talk about personal development and Internet searching, but these were not directly linked to each other. One interviewee spoke of trying to find more material and crystallizing a thought, without specifying how these were interrelated. An outsider only knows that they were both related to the same past and future activities:

Researcher: In what way have you then taken advantage of this material you’ve found in your thoughts or deeds or?

Juha: Have to admit that at this moment I haven’t had the time to take advantage in any way yet, I should get then more material and let the thought mature and move around Finland and the world then combine or then make an actual trip somewhere when it starts to interest me enough, the time hasn’t been ripe yet for any direct action. (Micro 744–745)

In other words, that sort of associating depicts Internet searching and individual growth as parallel phenomena. Another kind of associating links the two processes by means of some instrument or agent. For instance, the excerpt below presents books that linked the person’s cognitive development to the Internet:

Pihla: So after all like, if I really want to become acquainted with some topic, then I’ll seek out a book then, then I’ll get in-depth information. But usually I’ve found the hint to the book from the Net, so that way. (Macro 226–227)

The relationship of associating is here quite different from Chang and Lee’s (2001; see Section 2.1) “association.” They define it as concomitant information behaviors, whereas the present authors recognize it as synchronicity between information behavior and context.

4.3. Causing

Human growth causing a person to resort to the Internet—or the other way around—is a determining relationship, and as such a stronger one than affecting. Causing denotes that one thing creates the other thing, whereas affecting means that one thing changes the other thing (see Sinclair, 1987). For instance, personal development caused an informant to use the network for information searching when she needed to enlighten herself:

Researcher: What are the situations like when you start out to retrieve things related to this self-development or hobby, that you go to the WWW to retrieve something?
Meeri: It’s often that kinda problem which has incubated already for a longer time in mind so it’s some kinda matter which relates either to work that I want to get additional information about it, I want to get deeper information, I know that I have to discuss this in a few days with people or I know that some kinda a little additional information about this is expected from me, or an opinion or else it’s autumn or spring when I always decide to begin some hobby so I like have pondered on it already for the longest and then when I look at ‘well what would I now this time find here?’ It’s indeed the need been indeed already for the longest in mind and then I’ve got the kinda moment that I’ve got time or else the kinda moment comes that I know I have to go and civilize myself more. One or the other. (Macro 176–179)

In an opposite case, a Web search caused a goal of personal development since it made the informant think about getting to know a subject:

Researcher: Well… can you say on which matters you’re now better informed, than before this search? This search this time… was there anything new about it, or did some conception of yours about something change?

Noora: Dunno, if anything happened there… at least I got, like that some links stuck in my mind, where I willingly visit then again to have a look, but I don’t know anything new accruing that… Something like this just came that I must familiarize myself with the history [of the Internet and virtual worlds] like fundamentals a little more closely. (Micro 641–643)

4.4. Concerning

Self-development could concern (i.e., be about) Internet use, and on the other hand, certain Web pages concerned self-development. The former relationship is present in the next extract where the interviewee discusses being able to search and select information from the Web:

Researcher: How has this Web use changed in yer life these this kinda means of information seeking, has it opened up new possibilities or brought positive changes?

Katri: Well, there’s also the thing how I find the information then so that’s in my opinion most difficult exactly how I can retrieve it from there so that I find precisely the information that I’m looking for. Like I pondered then at the beginning that if one puts some search word there then there may come a million different answers so then their sifting is thus quite a job, that one can pick out from there exactly the thing one’s searching for. (Macro 144–146)

Web pages about education and finding one’s strengths, in turn, are samples of an Internet source concerning individual growth:

Researcher: If you think about those Web pages that you’ve bumped into so that they are specifically related to this self-development or hobbies, then what kinds are the useful pages?

Emmi: It depends terribly much on whether it is like that straightforwardly related to some self-development or hobby like that, so for instance now [speech unclear here] about some course offerings and others these adult education centers’ pages to for example the open university, the one that’s of all open universities in Finland, that’s pretty good so you can see what kind of education exists on the whole. And then if about some job seeking or else about others where one gets like that kinda advice on some such thing as how to find your own strengths albeit the ‘own strengths’ thing is not necessarily the kind of thing that would terribly improve there by reading the Net for ten minutes but in any case there are that kinda certain pages which are dedicated to the topic. (Macro 214–216)

4.5. Connecting

At first, the authors understood connecting as a one-way event, where the searcher used the Internet to find a person who had already reached a specific developmental goal. Connecting
refers here to the role of networked services. To illustrate this type of relationship, getting in touch with an expert is mentioned in the following transcript:

Risto: So it must be if one takes a certain no matter how narrow a subject area and puts on suitable searches there then more links are always found that one can then make use of and go to any depth, so one seeks out say the latest expert in the field and go say interview him if it comes down to that. (Macro 429)

In the end, the authors noticed that connecting worked the other way, as well: in some respect an evolved person guided the information seeker to the correct Internet address. Here it is the third party whose role is to connect. Another excerpt below again names human experts as those who can aid the searcher:

Sami: So it [the Internet] surely doesn’t give an answer to everything but sometimes one must use expert help and one can oneself too be in a manner of speaking an expert but then other colleagues’ and other expert networks’ help in that finding the information in the right place. Because there might be some piece of information in the Internet also but you can’t necessarily find it there. Then somebody else may know how to find it and so everything can’t be found with those search engines. (Macro 122–124)

Connecting is somewhat akin to the second form of associating, for they both exhibit a relationship involving three parties: the searcher, the Internet, and a third party. The difference is that while personal development is an aspect of the searcher in associating, it is an aspect of the third party in connecting.

4.6. Enabling

Enabling signifies that either achieving an objective of development made it possible for the individual to interact with the network in a manner that might not have been feasible otherwise, or an Internet search made it possible for him or her to reach an objective of development. The first sort is illuminated by a participant whose betterment of her language proficiency would have rendered more Internet material accessible to her:

Kaisla: And then the fact that my proficiency in the English language isn’t very strong, so that [from Internet sites] in the English language one would find really lots of pretty good information too, but so my language proficiency isn’t enough for it, so ... so so ... But that, so that’s then again that kinda one spot of self-development. (Macro 532–533)

The second sort of enabling may be exemplified by a situation in which Web sources empowered the informant to become more objective about her daughter:

Researcher: Well what was the use of those jokes then?

Senja: Well I think that the use will be in the longer term like I already said that I a little more realistically or will be a little bit able to like distance myself as I worry terribly about that girl, and although she’s doing fine in school but there’re all kinds of things, her courtship and other things so well ... when I read that kinda even rather lewd—I mean not in any way but that kinda like teenagers’ stuff so maybe I’ll become a little bit distanced from it so that I won’t like stay up night in and night out and ponder on that girl’s courtships or other things. (Micro 901–902)

Like causing and affecting, enabling is a chronological relationship in which one thing follows the other. Only here, what comes after is often more of a potentiality than an inevitable consequence.
4.7. Exploiting

In exploiting, one took advantage of personal growth in his or her Internet searching, or wielded networked services as an instrument for attaining an objective of development. One of the participants stated that she would learn from search results and conduct another search, thereby utilizing individual growth as a tool of directing her interaction with the Web:

Meeri: So I’d go through a couple of good lists that I got as a result now or let’s say that at this stage good pages and would learn from them and would start doing a new search. That’s why I stopped because for me in a way that kinda random retrieval is rather tiring so I must once in a while think a little. (Micro 328–329)

For another searcher, the exploiting relationship was quite to the contrary. She took advantage of the Internet in evolving her translation skills:

Researcher: What’s yer then like purpose here, with this search, so what does it serve?
Helena: Well, perhaps … that I’d discover the right way, to like translate. (Micro 39–40)

This latter link bears a resemblance to the first variety of connecting. There the searchers employ the Internet to connect with other persons’ maturity, but here they use the network to “build a bridge” from their own current state of development to the projected goal state of development. Exploiting of the second type can also be viewed as a form of “interaction”—a process flowing from the context to information behavior, and from there back to the context—as defined by Chang and Lee (2001; see Section 2.1).

4.8. Hindering

The relationship of hindering can be considered as the opposite of enabling. Hindering took place when self-development got in the way of Internet searching, or vice versa. In an interviewee’s opinion, being able to keep one’s distance from the Internet was an optimum condition worth pursuing. This was a factor that in all likelihood deterred his utilization of the Internet:

Sami: But the thing that anyway that one just has to be able to in some way break away from it [the Internet] lest it become too significant. Like I said that it’s in some way significant but I’ve strived for avoiding that it would gain too significant a role, because, at any time anything can happen like we’ve noticed here that all kinds of threats exist in the Internet there are viruses and others which can paralyse the whole system so it must not be given too significant a role. (Macro 149–150)

On the other hand, the Internet could also hinder a person’s self-development. One such incident involved having to go through a number of pages, before the informant could start interiorizing their content. In this sense, the search delayed her progress:

Researcher: Are ya going to now here learn them [SMIL tags; see “Synchronized Multimedia” at http://www.w3.org/AudioVideo/] by heart (then) [speech unclear here]?
Daga: Well no—it’s not worth (my) while at this moment. For the reason that so I haven’t yet visited these all … I’d guess that I browse through these [pages]. (Micro 224–226)
4.9. Illustrating

In this one-way relationship, an Internet resource provided an illustrating exemplar of what the searcher wished to accomplish as a result of evolving himself or herself. One of the informants saw a system of coordinates on a Web page (which is no longer available at the time of writing this report), and said he was after the skill of creating similar presentations:

Vertti: But what I’m searching for would be that I’d be able to make by myself this kinda text. To draw these pictures and write these texts there. (Micro 377–378)

There were no instances of development illustrating the Internet, nor is it imaginable how that would be possible. Illustrating resembles the source perspective of concerning in that they both deal with Internet material related to personal growth. The difference is that an illustrating resource does not offer information about development, whereas a concerning resource does. In other words, illustrating refers to the outcomes of development, and concerning refers to development itself.

4.10. Isolating

Isolating means that Internet use had nothing to do with a given facet of self-development. Below is a good example in which the subject denies any effect of Web searching on his understanding a problem:

Researcher: Well, what about, did this Web search increase your doubtfulness, or uncertainty about the issue [structure of time]?

Risto: Well, not really, it didn’t… to be sure this nature of the problem has been known to me for a long time already. (Micro 436–437)

An even more definite separation of Web searching and individual growth took place when the Internet was abandoned as a source of information. The following extract reveals how an informant wanted to systematize her studying, but the World Wide Web did not seem to offer a suitable information environment:

Researcher: In what way did yer the study situation then change? Or did it change in any way with this search?

Meeri: Well it didn’t unfortunately change so I did like presume that I’d get maybe the kinda material which would help sort this out but it didn’t change then more than that, so in a way the kinda vigor is still missing so the kinda that one does regularly something so one must like anyhow it comes from there between the ears, from self-discipline so it’s not necessarily the Web or even Web material that helps so one must in that way adopt the right attitude towards it, that it indeed was in the kinda community in which like the affair goes forward as if at school so that would be for me probably the best alternative at this moment. (Micro 436–437)

The relationship closest to isolating is associating, because they both showed the lack of a direct connection between Internet use and individual growth. Isolating is the more extreme variety, for it implies no connection at all—not even an indirect one. One might with good reason ask: if isolating does not involve a link between information seeking and a context, why is it included in the typology? The argument is that when their isolation is explicitly stated by
experiencers (like above), it constitutes a relationship whose essence is the independence of information seeking and a contextual element. Isolating may thus be a paradox, but no model of relationships would be complete without it.

4.11. Misleading

Finally, another one-way connection—misleading—denotes that Internet searching steered the individual towards a wrong target of growth. An interviewee perceived this as a potential danger in learning:

Researcher: Well do you see here any problems between this Internet use and self-development?

Pihla: Indeed from there one could learn a lot of all kinda stupid things too, and absolute hogwash. Totally absurd stuff.
(Macro 198–200)

Of the personal developmental goals, misleading Internet use did not occur in the current study, but such a relationship might well turn up in more extensive or focused data. Misleading of this kind could appear as growth leading the searcher astray, so that she or he ends up in a wrong Internet space, or goes online when in fact some other channel would provide better answers to their questions.

5. Discussion

The 11 relationships discovered between Internet searching and the goals of personal development appear to be quite illustrative of the connections between information seeking and context at large. This is evident from looking at the relationships per se: they are in no way bound to individual growth or Web searching. In other words, there is no obvious reason why the relationships would not apply to other kinds of information seeking (e.g., reading books or consulting other people) or other kinds of context (e.g., parenting or location). However, it appears that not all links are of the same intensity or specificity. Some are active (such as affecting and causing), while others are descriptive (such as associating and concerning). Such variation was necessary to cover all relevant instances in the empirical material. It is possible nevertheless that some relationships reflect a different level of abstraction to others, and thus some of the relationships might be in fact concrete manifestations of more generic ones. This is a question that could not be answered with the data at hand.

At any rate, it could be beneficial to condense the relationship categorization into another typology with just a few classes. On the basis of the results and their abstraction in Table 1 below, there are apparently four generic relationships between information seeking and context: detachment, unity, direction, and interaction. These emerged from recognizing some common, less concrete elements shared by certain specific relationships. The four formulae in Table 1 are logical representations that came from the idea of how to express each generic relationship as simply as possible. The definitions and formulae demonstrate
that the connections are increasingly complex (from detachment to interaction), as they involve more nodes (stages or parties). They also show that detachment and unity are non-directional, whereas direction and interaction are directional (processual or causal) relationships.

It would be interesting to explore whether any of the specific or generic relationships have been noted for personal development with other information resources; the Web is, after all, just one source among many others. Unfortunately, such research does not exist (as indicated by Section 2.2). It is almost as difficult to more generally connect the findings with prior work in the information behavior literature because explicitly analyzing the relationships (in plural) between information searching/seeking and its context has been so rare. Indeed, it is meaningful to compare the discovered generic relationships only with those found by Chang and Lee (2001; see Section 2.1). Their “association” is obviously a variety of detachment; “interaction” is practically the same as interaction centering on information seeking; and the “one-directional” connection refers to the kind of direction in which the context acts on information seeking. Chang and Lee’s classification does not have any counterpart of unity. In sum, the typology of generic relationships presented here is not only more exhaustive, but also more general.

However, Table 1 and the literature review (in Section 2.1) do raise the suspicion that the 11 ties identified in Section 4 probably do not cover all possible specific relationships in existence. Still, it is likely that the four generic categories are capable of accommodating all specific instances. Consider, for example, the two remaining connections from Section 2.1 that have not been discussed yet: context predicting Internet use, and Internet use responding to context. Now “predicting” suggests that the context determines information seeking, so it is clearly a case of direction. By contrast, “responding” implies that information seeking is a reaction to the context, but in turn it also contributes to the context; these are distinctive marks of interaction.

<table>
<thead>
<tr>
<th>Generic relationship</th>
<th>Definition</th>
<th>Formula</th>
<th>Specific relationships</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detachment</td>
<td>There is no direct link between IS and C</td>
<td>0 nodes: IS C</td>
<td>Associating, Isolating</td>
</tr>
<tr>
<td>Unity</td>
<td>IS cannot be separated from C</td>
<td>1 node: ISC</td>
<td>Concerning, Illustrating</td>
</tr>
<tr>
<td>Direction</td>
<td>IS and C are separate, but one acts on the other</td>
<td>2 nodes: IS—&gt;C or C—&gt;IS</td>
<td>Affecting, Causing, Enabling, Hindering, Misleading</td>
</tr>
<tr>
<td>Interaction</td>
<td>IS and C form a process, in which one acts on the other, which then acts back on the first phenomenon</td>
<td>3 nodes: IS—&gt;C—&gt;IS or C—&gt;IS—&gt;C</td>
<td>Connecting, Exploiting</td>
</tr>
</tbody>
</table>

a The number (0–3) of nodes means how many separable phenomena are connected.
b From Section 4.
6. Conclusion

Judging by the sheer variety of the detected connections, individual development is, to all appearances, a many-sided context of information seeking, rich with analytical opportunities. It is probably true that scholars’ conception of the endpoint of human growth has an impact on the direction of (information) research (Alexander, Druker, & Langer, 1990), even if this happens subconsciously. The endpoint may refer to the age at which significant development is seen to cease, or to what kinds of abilities are possible for man to achieve, for instance. Advancing an explicitly developmental or evolutionary approach (Spink & Currier, 2006) in information studies would entail incorporating human growth in itself into, say, models of information seeking, instead of using development as just another example context.

The major contribution of this study is the elaborating of the interrelationships between Internet searching and self-development. At first, 11 different specific relationships were identified: affecting, associating, causing, concerning, connecting, enabling, exploiting, hindering, illustrating, isolating, and misleading. Because these seem to be quite generalizable to information seeking in other contexts, too, they were then abstracted into four generic relationships: detachment, unity, direction, and interaction. Both the specific and generic typology presents a fairly extensive picture of the relationships that may occur between information seeking and its context. The categories are descriptive in the sense that they characterize a number of relationships. On the other hand, the categories are also explanatory, for they can be used in accounting for the role of information search. Such a systematic presentation of relationships has not been seen before in the field of information science.

These findings are not an end in themselves, but an instrument to be utilized in further research. Now that the relationships between information seeking and context have been charted, they can be taken advantage of in distinguishing connections in other research data. The work started here could be continued by testing the relationships with different sorts of information seeking or in different contexts; by measuring the distribution, strength and significance of the connections; or by analyzing each of them in more detail. Of particular concern, however, would be to find out the dynamics of multiple relationships, that is, what happens when, for example, information seeking is related to more than one context, or related to one context in more than one way. Linkage research would ultimately facilitate making sense of the relationships between context and other information processes (e.g., describing and exchanging information), as well, since all information phenomena are contextual. It thereby has the potential for integrating the sundry sectors of information studies.

One might still wonder about the practical relevance of studying the various relationships between information seeking and its contexts. Research findings would at least make the process of information seeking more apprehensible and manageable. Information professionals would be duly equipped to pay attention to context, allowing them to serve their information-seeking clients better via more individualized interaction (see McAfee Hopkins, 1989). For example, a person who has been informationally misled in relation to a context may be in a position very different from a person who wishes to accomplish something valuable by exploiting information, and thus they may need very different forms of help.
Information search tools are often based on subject access, and so the implicitly assumed relationship between information seeking (the user’s search) and its closest context (subject) is concerning: it is most essential that the found documents are about the chosen topic. By explicitly addressing the various relationships, however, system functionality can be greatly augmented. For instance, a person could be looking for real-life cases or pictures of parenting, not general information about it. If the relationships of illustrating and concerning were built into the search tool in a user-friendly manner, it would allow the searcher to specify whether to retrieve exemplifying or conceptual information about a subject. This sort of relational system development may not be easy or cheap to implement, but it might be worth the effort.

“Information seeking in context” is nowadays a fashionable catch-phrase that exhibits a common (Case, 2002) but stereotypical conception of the relationship between the two phenomena. The notion is so broad that it actually encompasses almost every connection mentioned in this paper. Indeed, it functions better as a meta-theoretical statement guiding substantive research. Even then, the expression as such does not really say anything meaningful about the relationships, leaving the activity of information seeking freely floating in context, as it were. It would therefore be more fruitful to speak of information seeking in interaction with context (Talja et al., 1999).

Acknowledgments

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Appendix A. Interview questions related to Internet searching and personal development

- How experienced a network user do you consider yourself? (novice/average/expert) Which areas do you think are your fortes? Are there weaknesses in some areas? To whom do you compare yourself in this respect?
- How could you develop your skills in Web searching?
- How would you characterize the role of the Internet in your self-development/hobby? How central or necessary do you deem the Internet?
- How has Web use affected your life in the area of your self-development/hobbies: has it opened up new opportunities, brought positive changes, etc.? What kinds?
- Does the Internet inhibit some aspects of your self-development/hobbies: Does network use limit or make your self-development or hobby one-sided in some way?
- In what kinds of self-developmental or hobby situations is the Web not usually helpful?
- In what ways do you move in the Web when trying to find something which serves your self-development or hobby? Do you visit individual pages or browse whole sites? How systematic is your movement: Do you try to avoid random surfing? Do you “bookmark” useful pages? Do you perceive information retrieval from the Web as pleasurable or rewarding?
• On what grounds do you select a given page if you retrieve material or information related to your self-development or hobby? Can you think of an example of this?
• What wider impact has Web material concerning self-development had on your life? Can you give me examples of this?

References


