Delineating the boundary of 'Context' in Information Behavior: Towards a Contextual Identity Framework

Naresh Kumar Agarwal, Yunjie (Calvin) Xu and Danny C.C. Poo
National University of Singapore (Dept. of Information Systems, School of Computing)
3 Science Drive 2, Singapore 117543
Email: {naresh, xuyj, dpoo}@comp.nus.edu.sg

Abstract. *Despite the seemingly widespread and growing attention to the notion of 'context' in information seeking, the concept remains ill-defined and inconsistently applied. There isn't any success in defining: What context really means? What are the boundaries of context? What constitutes the 'core' (main factors that lead to information seeking behavior) and what constitutes the 'surrounding' circumstances (or context)? Where do we draw the line between this core and the context? Or does this context subsume the core? The contribution of this theoretical study will be to help towards delineating the boundaries of context through a Contextual Identity Framework, where we apply the sociological notions of identity, personal identity, social identity and stereotype. The framework has 3 components: 1) Personal Context or 'my' context, 2) Shared Context or 'our' context, and 3) Context Stereotype or 'his/her/their' context. Through this framework, we highlight the futility of trying to define context using any one view. It is only when we take all the 3 views of context into consideration that we are able to adequately define, understand and study context. We hope the framework will provide a basis to further theoretical research in the meaning, role and boundary of context in information behavior.*

Introduction

In the last few years, the *context* of information seeking is receiving increased attention[1], along with equivalent notions like 'situation', 'setting', 'environment', etc. Cool (2001) attributes this to the thinking that 'in order to better understand information-seeking behavior (ISB) and information retrieval (IR) interaction, greater attention needs to be directed to the information spaces within which these activities are embedded' (p.5). However, despite the seemingly widespread and growing attention, the concept remains ill-defined and inconsistently applied (Cool 2001). Most literature on information needs, seeking and use fails to address the problem of context theoretically (Dervin 1997; Johnson 2003; Lueg 2002; Courtright 2007). There isn't any success in defining: What context really means (Courtright 2007, in her review, highlights the contending definitions)? What are the boundaries of context? The contribution of this theoretical study will be to help towards delineating the boundaries of context. Let us now work towards this effort by trying to make sense of what context actually means.

Definitions of Context

As per the dictionary, *context* means 'That which surrounds, and gives meaning to, something else' (Howe 1993); 'the set of facts or circumstances that surround a situation or event (WordNet 2006) or 'the circumstances in which an event occurs; a setting' (American Heritage Dictionary 2000). The situation or event here is a person's behavior when looking for information. Our intent here is to spell out the circumstances (context) that lead to a particular information seeking behavior, as well as to answer if context is just the setting or more than that.

Dervin (1997) describes context as an 'unruly beast' difficult to tame methodologically. Cool (2001) sees contexts as 'frameworks of meaning' (p.8). Equivalent terms used for Context have included (Courtright 2007):

- *Setting* (Bystrom 1997; Davies & McKenzie 2004; McKenzie 2004; Pettigrew 2000); Allen & Kim (2000) view contexts as the socially defined settings in which information users are found e.g. a work setting such as an office or a factory.
- *Environment* (Janes & Silverstein 2003; Lamb *et al.* 2003; Rieh 2004; Taylor 1991)
- *Information world / Life-world* (Chatman 1996; Kari & Savolainen 2003; Lievrouw 2001; Talja 1997)
- *Information ground* (Fisher *et al.* 2005; Fisher *et al.* 2004; Pettigrew 1999)

Fidel & Pejtersen (2004) use *constraints* to describe 'a host of factors external to the [information seeking] behavior itself' that influence the selection of strategies that people employ to find information. They say that in the systems approach terminology, such factors are called *constraints*, factors that affect information behavior, but cannot be changed by it (Churchman 1979). However, from a person-centric point of view, the information seeker might also

[1] Ingwersen & Jarvelin (2005); Jarvelin & Ingwersen (2004a) have called for Information Retrieval (IR) research to incorporate more context. ACM (Association for Computing Machinery) SIGIR (Special Interest Group on Information Retrieval) incorporated a workshop on Information Retrieval in Context (IRiX) in 2004 and 2005. The Information Seeking in Context (ISIC) conference is being held every 2 years – the 7th conference was held in 2008. The HARD (High Accuracy Retrieval from Documents) track of TREC (Text REtrieval Conference) also seeks to achieve high accuracy information retrieval by capturing more information about the search context. 'The underlying hypothesis (and belief) is that by taking account of context, the next generation of retrieval engines dependent on models of context can be created, designed and developed delivering performance exceeding that of out-of-context engines.' (Ingwersen, Jarvelin & Belkin, 2005).

be able to influence context apart from being influenced by it. This is supported by Ingwersen & Jarvelin (2005) when they say '*actors* and other components function as context to one another in the interaction processes (p.19). Fidel & Pejtersen (2004)'s dimensions of cognitive work analysis (work environment/domain, organization, activity/task, user characteristics, actors resources and values, etc.) each create a constraint for the one nested in it. 'Thus, the work environment affects how a work place is operating, and this mode of operation shapes the task that an actor performs. The task, in turn, affects the decisions that an actor makes, and these decisions influence seeking behavior. In addition, the actor's characteristics have an effect on seeking behavior and so does the social organization of the work place.' (Fidel & Pejtersen 2004)

The term *situation* has been used interchangeably with context (e.g. Allen 1997), but Cool (2001) seeks to disambiguate the term situation from 'context'. In information science, the concept of situation has been investigated primarily in studies in information-seeking processes, information interaction, and IR behaviors (Cool 2001). Sonnenwald (1999) states that context is larger than a situation and may consist of a variety of situations. 'Different contexts may have different possible types of situations' (p.180). Cool (2001) extends Sonnenwald (1999)'s notion to suggest that 'contexts are frameworks of meaning, and situations are the dynamic environments within which interpretive processes unfold, become ratified, change, and solidify' (p.8). Allen & Kim (2000) view contexts as the socially defined settings in which information users are found e.g. office…within each of these broad contexts, different situations occur…individuals may be situated in different ways in the context' (p.1). McCreadie & Rice (1999 p.58) define context as the 'larger picture in which the potential user operates; the larger picture in which the information system is developed and operates, and potential information exists', whereas situation is seen as 'the particular set of circumstances from which a need for information arises.' Courtright (2007) sees context as including those elements that have a more lasting and predictable influence on information [behavior] than situation, whereas situation is seen as a potential part of context.

Dervin (1997 p.14-15), through a 3-tiered categorization of context, argues that for many, 'context has the potential of being virtually anything that is not defined as the phenomenon of interest…a kind of container in which the phenomenon resides.' A second group struggles with trying to determine which of an 'inexhaustible list of factors' will be included in context. For a third group of researchers, context is 'the carrier of meaning…an inextricable surround without which any possible understanding of human behavior becomes impossible' (Courtright 1997).

Boundary of Context: Contextual Identity Framework

A complex, but important question is to reason what constitutes the 'core' (main factors that lead to information seeking behavior) and what constitutes the 'surrounding' circumstances (or context). Where do we draw the line between this core and the context? Or does this context subsume the core?

Different researchers have arrived at different models for context (that help in defining the boundary of context) (Courtright 2007). Taylor (1991) developed a model of context known as the *information use environment (IUE)* which consisted of four categories of elements: 1) user demographics – education and profession, 2) how searchers conceptualize the problems that lead to information seeking, 3) the constraints and opportunities of the searcher's setting, and 4) types of problem resolutions sought/needed. Another model termed *information ecologies* was developed by Nardi & O'Day (1999). Applicable both to the workplace and home, it stresses on the diverse array of human activity that takes place within a closed setting as a bounding element for context.

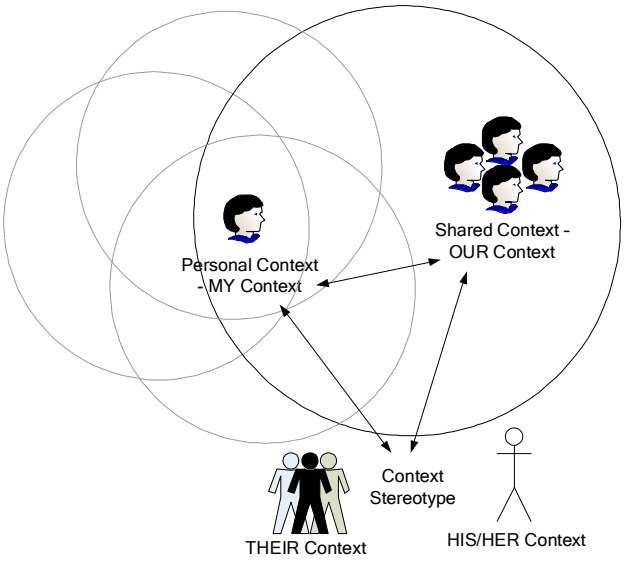

Figure 1 Contextual Identity Framework

Courtright (2007) says that although it is generally agreed that context constitutes a 'frame of reference' (Vakkari *et al.* 1997 p.8) for information behavior, there is little agreement as to how such a frame of reference is established by/for the person with need for information or how it operates with regard to information practices. 'Those factors [influencing information behavior] that fall outside the realm of the fundamentally cognitive or psychological tend to be included, to varying degrees in both theoretical and empirical research, in the term 'context' or its equivalents' (Courtright 2007 p.275). What this implies is that apart from what is in the actor or searcher's mind when looking for information, everything else has been viewed as context.

To help resolve the complex issue of the boundaries of context (which Dervin 1997 calls an 'unruly beast' difficult to tame methodologically), we propose the 'Contextual Identity Framework' (see Figure 1).

Identity is a term stemming from cognitive theory, sociology, politics and psychology and is used to denote an individual's idea of who s/he thinks s/he is. Tajfel & Turner (1979) developed the social identity theory where a person has not one, 'personal self' [personal identity], but rather several selves that correspond to widening circles of group membership. Different social contexts may trigger an individual to think, feel and act on basis of his personal, family or national "level of self" [social identity] (Turner *et al.* 1987). While the notion of *personal identity* refers to self-knowledge that derives from an individual's unique attributes (Universiteit Twente 2004), *social identity* is the individual's self-concept derived from perceived membership of social groups (Hogg & Vaughan, 2002; Universiteit Twente 2004). Social identity brings with it in-group, out-group differentiation. There is an affinity between those within the group. Individuals often *stereotype* others who are outside their groups of identity, drawing prefixed conclusions about them and slotting them in already formulated categories.

In the Contextual Identity Framework (see Figure 1), we apply the sociological notions of identity, personal identity, social identity and stereotype to help towards delineating the boundaries of context. The framework has 3 components: 1) Personal Context or 'my' context, 2) Shared Context or 'our' context, and 3) Context Stereotype or 'his/her/their' context. The three bidirectional arrows in the figure represent the continuous interaction between the three views of context.

Personal Context or 'My' context

Courtright (2007) brings forth the challenge of context saying the shift from system-centric research to person-centric research results in the concept of context being pushed to the background. This is because in order to avoid a system-centric bias, factors external to the searcher i.e. anything which is not affective/psychological/cognitive (which Courtright 2007 and other researchers view as 'context') are considered less important, and when considered, are stressed only to the extent they are *constructed by the individual* (Dervin 1997). While the concept of context remains relevant even from a user-centered perspective (Malmsjo 1997), Thomas & Nyce (2001) highlight the challenge of moving beyond merely cognitive and affective influences without losing sight of the actor or searcher at the center of information behavior. Courtright (2007) sees this as the problem of the 'ontological status of context' (to what extent context depends upon searcher's constructions and to what extent contextual elements are external to the searcher).

The user-centric view espoused by researchers such as Dervin & Nilan (1986) and Kuhlthau (1988) is the Personal Context or 'My' context in the proposed Contextual Identity Framework of Figure 1. As per the Personal Context, *everything*, including the factors external to the searcher (which is largely seen as constituting 'context') is seen from the affective, psychological or cognitive viewpoint of the searcher. The influence of this context is not the way it exists external to the searcher, but rather in the way it is constructed in the mind of the individual. Thus, from the viewpoint of the Personal Context or 'My' context, *everything is subjective* i.e. everything is the way the searcher/actor sees it (if I am the actor/searcher, everything is the way *I* see it or think of it). Nothing is external or objective here.

Shared context or 'Our' Context

Shared context (our context) is the common view of context shared by a group of people that are connected by a common identity e.g. people of a certain demographic group, people of a certain profession, those working for a certain company or organization, etc. (may be compared to *social identity* of Tajfel's & Turner's 1979 social identity theory). The view of context of individuals within a shared context is shaped by a common set of ideologies or goals to strive for (e.g. the business the company is in or the composition of a particular team) is bound by a common set of rules, norms and culture (e.g. organizational rules, organizational culture) and is often limited by a common set of constraints and resources. Using Giddens' (1984) structuration theory, Rosenbaum (1993, 1996) says that above all, organizational rules and resources shape information practices (or behavior) in the information use environment (IUE) espoused by Taylor 1991, and that members' [all those who share a common context] activities reinforce these rules and resources. Similar findings were also reported by Allen & Wilson (2003), Chang & Lee (2001) and Solomon (1997b, 1999) (Courtright 2007). All these information seekers are bound by a shared context, which they see as 'our' context (see Figure 1). In digital environments, in addition to organizations, *invisible colleges*[2] become more important in influencing people's information-seeking behaviors as a shared context.

Fidel & Pejterson (2004) and Courtright (2007) argue in favor of defining context within a bounded organization as opposed to context for everyday life activities, saying it is easier to do so from the viewpoints of both the searcher/actor and the researcher (Savolainen 1998; Johnson 2003). Our Contextual Identity Framework however, is not bound by any such limitations. The framework seeks to be universal in application. It should apply to information seeking situations within the boundaries of an organization, as well as outside it when a person is knowingly or unknowingly searching for information. This is because we view it from the standpoint of *identity* (as discussed in the

[2] The term 'invisible college' mainly refers to the free transfer of thought and expertise though loosely-connected systems (e.g. Internet) without any physical or institutional presence. The concept was developed in the sociology of science by Diane Crane (1972). It is related, but differs from other concepts of expert communities such as 'epistemic communities' (Haas 1992) or Community of Practice or CoP (Wenger 1998) (Wikipedia – invisible college)

previous page) which is intrinsic to the person irrespective of where s/he is. Nardi & O'Day (1999)'s information ecologies model applies both to the work place and home. Studies on the home environment have emphasized more on social interaction and the goals of information activities (Courtright 2007). Davenport *et al.* (1997, 2000) see the home as a discrete micro-organization. Rieh (2004) argues that the home is not a discrete context but instead contains contextual elements that interact with broader spheres of information activity outside the home. Rieh's argument is essentially representative of the interaction between the personal, shared and stereotypical context in our Contextual Identity Framework, the boundaries of which cannot be discretely fixed. Pettigrew (1999) has developed the concept of *information ground* to illustrate non-workplace boundaries such as library classes, health clinics, places of worship, hair salons, etc. where people come together for a singular purpose, but from whose behavior emerges a social atmosphere that fosters the spontaneous and serendipitous sharing of information (Courtright 2007).

While many researchers have used traditionally defined organizational boundaries to bound context, other researchers (Allen & Shoard 2005; Hirsh & Dinkelacker 2004; Lamb *et al.* 2003; Attfield & Dowell 2003; Doty & Erdelez 2002; Choo 2001; Tibar 2000; Barry 1997; Owens *et al.* 1997) find that these must be transcended in order to understand information practices (Courtright 2007). Based on Scott (1987)'s model of open-organizational systems, Lamb *et al.* (2003) examine extra-organizational factors such as regulations, industry-wide infrastructures, and client expectations that influence information seeking within an organization. Barnes *et al.* (1997) find that high-performing work teams acknowledge extra-organizational context more than low-performing teams do. All these factors, whether those within an organization (e.g. work rules, organizational culture, main business of the company, etc.) or extra-organizational as outlined above, form part of the shared context (OUR context) of people working in an organization and shape their information seeking behavior.

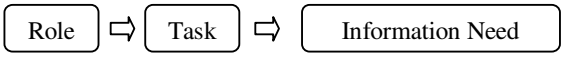

Figure 2 Relationship between role, task and need (Leckie & Pettigrew 1997)

In the shared context of an organization, Leckie & Pettigrew (1997) analyze the main contextual factors influencing information behavior to be the person's role at work, and the tasks s/he is charged with as a result of this role. The tasks, in turn, give rise to information need (see Figure 2). The strategies deployed to meet those needs vary according to 'factors such as the corporate culture, individual habits, availability of information systems and sources, commitment to professional development, etc.' (Leckie & Pettigrew p.101).

Audunson (1999) supports the emphasis on roles by saying that roles contain sets of identifiable norms that govern information behavior. He says that when these information-seeking norms vary across similar roles, this is due to the 'strength of rules and the cohesion and degree of social control from a centre' (Audunson 1999 p.78; Courtright 2007). In other words, a work role emphasizes a shared context in our Contextual Identity Framework of Figure 1. This shared context of work role is expected to be a more cohesive and stronger context than organizational factors (e.g. corporate culture, norms, resources), which in-turn is expected to have a stronger influence than factors outside the organization.

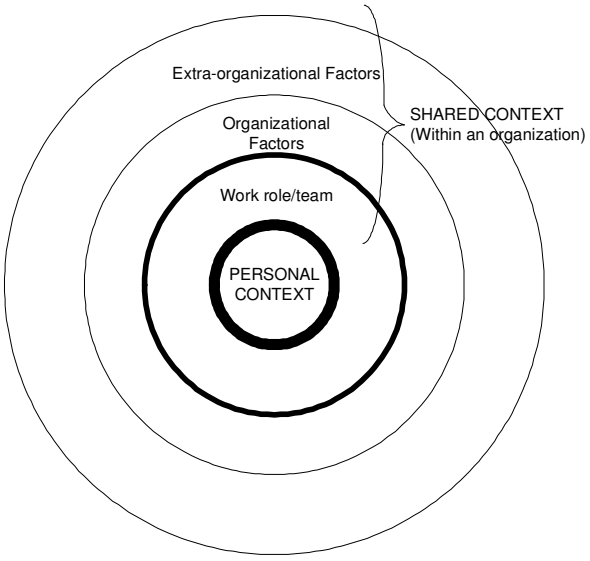

Figure 3 Concentric circles of shared context within an organization

Figure 3 shows an employee within an organization situated in his/her personal context. S/he in turn, is surrounded by the concentric circles of shared context – a set of factors that are common to all members of a team or an employee of a particular work role. There is also a shared influence of organizational factors such as corporate norms and culture. Other factors outside the organization such as regulations, industry-wide infrastructure, etc. might also influence. The smaller circles are expected to have the greatest degree of influence on the information seeking behavior of an actor/employee in an organization. As the circle gets bigger, the degree of influence becomes increasingly weaker. Williamson (1998) has also used the model of nested contexts (similar to the concentric circles of Figure 3) where the information actor is surrounded by a circle of intimate personal networks, then wider personal networks, the mass media, institutional sources, and finally an outer ring of context that is characterized by personal characteristics, socio-economic circumstances, values, lifestyles, and physical environments (Courtright 2007). Nested contexts can also be found in Kari & Savolainen (2003), Sonnenwald (1999) and Wilson (1981).

However, in our model of concentric circles (Figure 3), the boundaries of these circles are not to be seen as

fixed. They vary according to the person's point of view.

These circles have a strong or weak binding on the actor/seeker only as long as s/he thinks them to be. This view is supported by Lievrouw (2001) who views the boundaries of context as evolving dynamically through the practices of information actors. She views context as taking shape through institutional practices of generating information, organizing it and governing its distribution and on the other hand, through social practices in which individuals share and seek information. The two parts of the environment evolve over time, interact and shape each other (Courtright 2007). Actors actually arrange their social and physical environments so that they can provide needed information (Bates 2002).

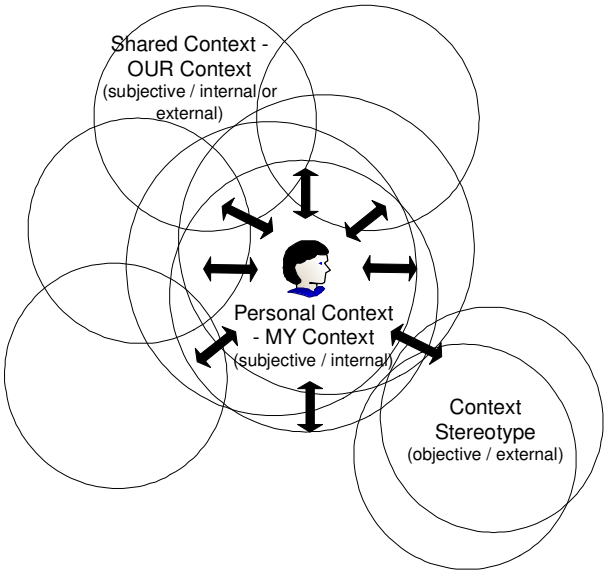

Figure 4 Continuous shaping of context through external environment and the information seeker's perception of it

Figure 4 shows the continuous shaping of context through the external environment (which is external, objective) and the way the information seeker perceives it to be (subjective, internal). Here, the *personal context* of the Contextual Identity Framework (Figure 1) may be viewed as subjective (the perception of the seeker) and *context stereotype* (discussed in the following section) may be viewed as an external, dispassionate, objective view (the setting, as espoused by Bystrom 1997; Davies & McKenzie 2004; McKenzie 2004; Pettigrew 2000). The *shared context* may also be viewed as subjective and it may be external (where factors in the shared context are influencing the seeker) or internal (when the seeker internalizes the shared context and identifies with the norms, rules and other aspects of it). The three views of context do not operate in isolation. Rather, they continuously shape each other, as shown in Figure 4. E.g. an interaction between the shared context (e.g. work environment) and personal context gives rise to a task or personal situation. A source for information can either be part of context stereotype or shared context depending on the level of closeness between the seeker and the source. This relationship between the seeker and the source forms the interaction between personal context, on the one hand, and shared context/contextual stereotype on the other. The information to be sought or received also results in the interaction between personal context and shared context/contextual stereotype.

While Figure 3 was an example of shared context in concentric circles, there can be different overlapping circles of shared context such as the circles of 1) work role/team[3] 2) race/religion/nationality 3) gender/sexual preference 4) age group 5) friendship, etc. which might provide a common context to a set of people in an organization or outside it and influence information seeking behavior. These different circles also influence information behavior outside the organization. Case (2007) reviews the research on information behavior of people studied by *occupation* such as scientists and engineers, social scientists, humanities scholars, healthcare providers, managers, journalists, lawyers, etc. (pp. 250-284), studied by *role* such as citizen or voter, consumer, patient, gatekeeper, students, etc. (pp. 285-303) and those studied by *demographic group* such as age, racial and ethnolinguistic minorities, socioeconomic status, gender, etc. (pp. 303-316). Lievrouw & Farb (2003) also say that a seeker could conceivably inhabit several discrete or overlapping information environments depending upon activities and imperatives. Other research in information behavior (Johnson 2003; Lamb & Kling 2003; Solomon 1999; Sonnenwald 1999; Sonnenwald & Lievrouw 1997) and sociological theory (Pescosolido & Rubin 2000; Weber 2001; Sewell 1992; Friedland & Alford 1991) have also brought forth the concept of multiple and overlapping contexts (Courtright 2007).

The concept of a shared context or 'Our' context as espoused in our Contextual Identity Framework can be understood through Chatman (2000)'s 'small-world theory', where geographically-bounded (even dispersed, but bound together) groups live in a 'small world' governed by a worldview and will tend to behave within its norms and expectations until and unless a critical need arises that forces them to look beyond the worldview. Chatman (1999) defines worldview as 'a collective set of beliefs held by members who live within a small world. It is a mental picture

[3] Although ideally, work role/team should be the most important circle of shared context in a professional organization, groupism based on various factors such as ethnicity or gender is often observed in many organizations and influences or limits information seeking behavior. E.g. Cox *et al.* (1991) studied the effects of ethnic group cultural differences on cooperative and competitive behavior on a group task. They found that groups composed of people from collectivist cultural traditions (Asian, Hispanic, etc.) displayed more cooperative behavior compared to groups composed of people from individualistic cultural traditions (Anglo Americans).

or a cognitive map that interprets the world' (p. 213). This also makes way for an acceptance of 'certain ways in which to speak, behave, and accept or reject information' (Chatman 1999 p.211). There is a certain comfort zone within this worldview. 'People will not search for information if there is no need to do so. If members of a social world choose to ignore information, it is because their world is working without it' (Chatman 2000 p.10). Thus, any common binding factor such as a common work team, a common organization, a common goal to strive for, the same race, the same gender, the same nationality, etc. can bind a group of people into being governed by a worldview (which we term 'shared context') and can influence the information seeking behavior of all those within this circle of people sharing the common worldview. Thus, our model of shared context extends to organizations and beyond it to include all those areas where people share a common worldview or a shared context. As Courtright (2007) puts it, 'as in the organizational context models…, members of the same social world [shared context] appear to carry out roles and are governed by norms in their information [behavior]' (p.280).

Apart from the small-world theory, the concept of a shared context can also be understood using Savolainen (1995)'s model for everyday-life information seeking, where the manner in which one's 'way of life' is organized is used to denote context.

Context Stereotype or 'His' / 'Her' / 'Their' Context

Courtright (2007) says that while multiple, overlapping contexts renders more complex the research challenge of identifying contextual boundaries, the 'dynamic, multilayered approach appears well-suited to addressing the complexity of everyday-life information practices' (p. 281). This idea is, perhaps, the only correct way of understanding context (as shown in the Contextual Identity Framework of Figure 1). This is because at the end of the day, *everything is what you think it is*. While the external environment that shapes context exists independently, the person looking for information imbibes this environment as per his/her own mental makeup and perception. As information need is primarily an activity that appears in a person's mind (explained by Dervin (1983) through her sense-making theory, Belkin *et al.* (1982) through the notion of Anomalous State of Knowledge or ASK, etc.), taking this into consideration is very important. In reality, there is nothing called an 'objective context'. *All context is subjective, and varies in the mind of the searcher* – in the way the person in need for information imbibes it, gets affected by it, accords it more importance or less importance. Some contextual boundaries are more fixed (e.g. organizational), some are less fixed and vary more rapidly.

Cognitive theorists define a *stereotype* as 'a cognitive structure containing the perceiver's knowledge and beliefs about a social group and its members' (Hamilton *et al.* 1992, p.135). It is a categorization and over-simplification process whereby 'individuals sharing common properties are placed in the same group' (Hamilton & Trolier 1986), often by people who do not belong to this group. Here, we extend the notion of stereotype in defining context. All instances where context is seen as a *setting* (e.g. Bystrom 1997; Davies & McKenzie 2004; McKenzie 2004; Pettigrew 2000; Allen & Kim 2000) or *environment* (e.g. Janes & Silverstein 2003; Lamb *et al.* 2003; Rieh 2004; Taylor 1991) may be seen as examples of context stereotypes (process of categorizing and simplifying).

Although stereotypes can promote failure, they can also lift a person/group's performance and be tools that promote social progress (Haslam *et al.* 2008). Walter Lippman was the first to suggest the functional necessity of stereotypes (Ashmore & Del Boca 1981; Rahn 1993). 'For the real environment is altogether too big, too complex, and too fleeting for direct acquaintance. We are not equipped to deal with so much subtlety, so much variety, so many permutations and combinations. And although we have to act in that environment, we have to reconstruct it on a simpler model before we can manage it. To traverse the world, men must have maps of the world' (Lippman 1922 p.11). Much of contemporary social psychology has followed Lippman's lead, viewing the formation and use of stereotypes as natural consequences of normal categorization processes of human cognition (Rahn 1993).

The view of context as 'a setting' or 'an environment' (and one that has been criticized by researchers adopting the person-centric view of information seeking) may also be viewed as an outcome of this natural categorization process of human cognition. Thus, while all context is subjective and dynamic and can be bounded only insofar as it exists in the mind of particular searcher at a particular point in time, researchers and designers of information systems for search can, nevertheless *attempt* to objectify this subjective context (the process of stereotyping). This attempt is crucial because it paves the path for designing search systems that could be applicable in various settings such as organizations, home environment, etc. However, to be truly effective, these systems must be designed keeping in mind that the context is actually subjective in nature, and the searcher must have room to modify the search system as per his/her unique set of requirements at a particular point in time. This attempt of seeing context to be objective is what Courtright (2007) terms the 'research challenge of identifying contextual boundaries' (p. 281).

Thus, the context of the *other* person, as seen from the eyes of somebody (may it be an employee in a company, a manager, any person outside an organization, or a community of researchers trying to map the boundaries of context), is what we term *context stereotype* in the Contextual Identity Framework (Figure 1). It is the context surrounding a person B, as seen from the eyes of a person A. Thus, as opposed to 'my' or 'our' context, this is 'his', 'her' or 'their' context. Thus, this view appears more objective than 'my' (personal) or 'our' (shared) context, which are largely subjective in nature. This view, sometimes labeled 'positivist' (Dourish 2004) or 'objectivist' (Talja *et al.* 1999), presents contexts as a set of stable, delineated entities that can be conceptualized independently of the activities of their participants (Courtright 2007). In most empirical studies, context 'usually refers to any factors or variables that are seen to affect individuals' information-seeking behavior: socio-economic conditions, work roles, tasks, problem situations,

communities and organizations with their structures and cultures, etc….Context refers to objective reality' (Talja *et al.* 1999 pp.752-753).

Thus, while the 'context stereotype' view is perhaps most natural to positivist research, researchers such as Talja *et al.* (1999) and Burawoy (2003) take an interpretivist standpoint and argue that the researcher also contributes to the creation of context during research. Ingwersen & Jarvelin (2005), in their model, support this view. Talja *et al.* (1999) argue that context is also created by the researcher at the intersection between actors' constructions of context-as-meaning and the researchers' examination of the actors' lives; 'context is the site where a phenomenon is constituted as an object to [researchers]' (p.754); context when viewed interpretatively is constituted 'at the crossroads between researchers and data' (p.755) (Courtright 2007).

Relationship between the three views

Table 1 summarizes and compares the three views of Context espoused in the Contextual Identity Framework of Figure 1. Prior research in information behavior has looked at each view in isolation (as opposed to a collective whole). Researchers adhering to a particular view have tried to justify their stand taken. Others have opposed and criticized it.

Table 1 Comparison between the three views of Context

	Personal Context	Shared context	Contextual stereotype
View	My context	Our context	His/Her/Their context
	Context of person A seen from the eyes of person A	Context of a group A, B, C seen from the eyes of either A, B or C	Context of a person B seen from the eyes of person A
	Personal, internal	Runs through a group due to the shared identity of the group	External
Objectivity	Subjective	Subjective	Objective
Degree of change	Dynamic contextual boundaries – degree of variation varies across different contexts	Largely static boundaries insofar as the shared context is concerned (boundaries of personal context will remain dynamic).	Attempt to see or form fixed, static boundaries
Layers	Multilayered, contexts Some strong, some weak	1-3 layers of largely simple contexts; the shared context is very strong	A few layers of simple, objective contexts; objective attempt to understand the strength of contexts
Reality versus simplification	Reality / complex	Trying to find commonality/sense of security in shared contexts (common norms and values; common *worldview* – Chatman 2000)	Trying to simplify context (a research imperative; important for design of search systems); slotting, convenient (not reflective of actual reality)
Boundary	Cognitive, affective, psychological	Cognitive, affective, psychological (shared boundary within group)	That which surrounds the "cognitive, affective and psychological"
Applies to	Applies only to the person concerned; excludes everyone else	Includes those within the shared context; excludes those outside the shared context	Person viewing is outside the circles of context surrounding the actor
Resides in	My mind	Our minds	His mind; her mind; their mind
Context is	My perception of my mind, our minds, other minds and external world	Our perception of our minds, our internal world, minds in other groups and external world outside our group	My perception of (or an objective study of) other minds and external world

Courtright (2007) reviews literature on Context classified along *social*, *relational* and *dynamic* lines. Her review of research on 'context as constructed meaning: the person in context' (pp.287-288) can be mapped to 'Personal Context', research on 'socially constructed context: the social actor' (p.289) can be mapped to 'Social Context' while research on 'context as container' (pp.286-287) can be mapped to the 'Context stereotype' view of the Contextual Identity Framework.

Table 2 shows how the three views of the Contextual Identity Framework map to Courtright (2007)'s typology (p.286-290). In isolation, each of the three views is inadequate to represent the phenomenon of Context in information behavior (or information needs, seeking and use / INSU) research.

Table 2 Contextual Identity Framework mapped to Courtright (2007)'s classification

Courtright (2007)'s typology	Classification by Courtright (2007)	Mapping to Contextual Identity Framework
Context as 'Container'	social, relational	Context stereotype
Context as Constructed Meaning: Person in Context	dynamic	Personal Context
Socially Constructed Context: The Social Actor	social, dynamic	Shared Context
Relational Context: Embeddedness	relational	Interaction among the three views of Context
Changing Context	relational, dynamic	Largely Personal Context & Shared Context

An underlying assumption of the person-in-context (Personal Context view) type of study is that an understanding of the information needs and activities of the group or organization can be built on an accumulation of studies of individuals (e.g. Reneker *et al.* 2001). However, the individual-constructivist stance makes generalizations implausible (Frohmann 2004). Instead, there lies the danger of solipsism (Courtright 2007), the philosophical idea that my mind is the only thing that I know exists and that knowledge of anything outside the mind (other minds or the external world) is unjustified. Courtright (2007) says that this danger has not been convincingly addressed within the traditional user-centered paradigm (Dervin 2000; Savolainen 1993). In addition, person-in-context models do not adequately account for the complexity, variability and mutual interactions of contextual factors such as social networks, information technologies and organizational practices (Courtright 2007). Thus, the Personal Context view of the Contextual Identity Framework (Figure 1), taken in isolation, is inadequate.

The socially constructed context: social actor model (Shared Context view) while taking care of the role of social interaction in constructing information cannot be sufficient to define context when taken in isolation (if the constructivist view and the objective view of context are to be totally ignored).

The context as 'container' model (Context Stereotype view) posits that elements of context exist objectively around an actor and could therefore be enumerated by a researcher who has observed or queried the actor's life (Courtright 2007). Taking this view in isolation, if context is seen merely as a container or backdrop for information practices, then research cannot explain variability among actors in the same or similar settings (Courtright 2007). Also, it conflicts with the person-in-context model of user-centered studies (Personal Context).

In order for the concept of Context to be meaningful and relevant, Courtright (2007) says that contextual elements must be explicitly linked to particular information practices and comparisons among actors and contexts must be used to explain variability and thereby build more robust theories of information seeking in context. While the past decades have seen a shift from system-centric research (emphasizing 'Context Stereotype' type of contextual studies) to user-centered research (emphasizing 'Personal Context' type of contextual studies), the new challenge now for user-centered research is how to conceptualize the shaping influences of context without going back to the system-centered view where information behavior is seen as predictable according to set environmental variables (Courtright 2007). The Information Seeking in Context (ISIC) conferences have so far failed to arrive at a theoretical paradigm that might represent the next step forward from the classic 'user-centered' stance.

As Ingwersen & Jarvelin (2005) point out, taking context in isolation doesn't work. 'In IS&R, *actors* and other components function as context to one another in the interaction processes. There are social, organizational, cultural as well as systemic contexts, which evolve over time' (p.19) '…*actors* and objects associated with each component of the *cognitive* I&R *framework* function as context for their own elementary *cognitive structures* (intra-object context), as context to one another (inter-object context), and in context of the interaction processes between framework components, which themselves are contextual to each other. In the latter case, one may talk about social/organizational/cultural, as well as systemic contexts. The context of *interactive IR* processes ranges from algorithmic IR processes in context of interactive IR, as well as information seeking processes to information behavior. All IS&R components and activities are in context of common social, physical and technological infrastructures as well as their history over time.' (Ingwersen & Jarvelin 2005, p.383). Compared to systems-oriented IR research, in cognitive and user-oriented IR research 'IR is placed in context in a holistic way: all components/cognitive actors and structures of IS&R are contextual to one another;' (Ingwersen & Jarvelin, p.193)

In the Contextual Identity Framework (Figure 1), all the three views of context i.e. my view, our view and his/her/their view coexist and work in tandem. E.g. factors such as the searcher's individual habit and commitment to professional development might be personal contextual factors, but are subject to influence by shared contextual factors such as corporate culture, availability of information systems and sources, etc. Also how strong or weak a particular view is might be subject to cultural influence. E.g. A person adhering to an individualistic culture might give more importance to personal context than shared context. Conversely, a person adhering to a collectivistic culture might give more importance to shared context than personal context.

Conclusion and Future Work

Despite the seemingly widespread and growing attention to the notion of 'context' in information seeking, the concept remains ill-defined and inconsistently applied. There isn't any success in defining what context really means and what its boundaries are. To help towards delineating the boundaries of context, we propose a Contextual Identity Framework which sums up the three schools of thought on Context – 1) those that think context is subjective and resides in the mind of the seeker (personal context or 'my' context); 2) those that think context is made up of shared norms and social influences (shared context or 'our' context); and 3) those that think context is objective and made up of the factors and environment that *surround* the seeker (context stereotype or 'his/her/their' context. Through the framework, we highlight the futility of trying to define context using any one view. It is only when we take all the 3 views of context into consideration that we are able to adequately define, understand and study Context. As highlighted by Ingwersen & Jarvelin (2005), the seeker and surrounding objects function as context to one another during information seeking behavior, and that both inter-object and intra-object context work together. We hope the framework will provide a basis to further theoretical research in the meaning, role and boundary of context in information behavior.

The framework also holds practical implications for managers and practitioners. By understanding how three views of context coexist and work in tandem, managers can better place resources such that employees feel them to be

a part of their shared context (as opposed to context stereotype). E.g. employees with shared norms and similar expertise can be seated together so that they feel a greater level of cohesiveness and develop a feeling of shared context. An understanding of the uniqueness of the personal context of each employee is also important in making hiring decisions and understanding their information seeking behavior. The framework is also useful for designers of search systems to better understand how context works, and to incorporate the 3 views in their design decisions. E.g. specialty search engines geared towards doctors or lawyers are examples of search systems pertaining to a specific shared context of a common profession. 'The underlying hypothesis (and belief) is that by taking account of context, the next generation of retrieval engines dependent on models of context can be created, designed and developed delivering performance exceeding that of out-of-context engines.' (Ingwersen, Jarvelin & Belkin, 2005)

Future work will include proposing a theoretical framework incorporating the contextual variables (making each of the three views of the Contextual Identity Framework) that will impact a person's information seeking behavior. E.g. the environment of a seeker's shared context plays upon the seeker or cognitive actor (personal context) to bring about a problem situation requiring a need for information. This gives rise to knowledge or information that needs to be sought from a source (context stereotype or shared context, depending upon the level of closeness with the source). The seeker then approaches a source (personal or impersonal) for this information. Depending upon the interaction between the seeker and the source, and the relationship shared by the seeker and the source, the source passes the knowledge sought to the seeker. Here, variables pertaining to the seeker (such as learning orientation, background knowledge, age, gender, intentionality, self efficacy, etc.) can be seen as part of the seeker's personal context. Environment variables (such as rules and resources, team size, cohesiveness, etc.) can be seen as part of the seeker's shared context in the environment in which s/he operates (or invisible college in a digital environment). An interaction of personal context and shared context gives rise to variables pertaining to the task or problem situation (such as task importance, urgency, complexity, uncertainty, etc.). Based on this task (or otherwise, through factors such as curiosity), an information need arises (which, as per Dervin's sense-making theory or Belkin's anomalous state of knowledge or ASK can be seen as part of the seeker's personal context). This information need is fulfilled by getting information from an information source (a person, internet, books, etc.) which can be seen as part of context stereotype (if the seeker doesn't identity with them) or part of shared context (if the seeker sees them as belonging within his/her circle of shared context). Other variables from the seeker-source relationship (social risk, willingness to share, etc.), the information required (tacitness, complexity, etc.) and the interaction session (time, place and history of interaction) lie within boundaries of interaction between two or more views of context (as per the Contextual Identity Framework). What is discussed here is just a preview of how the theoretical framework incorporating contextual variables will shape up, based on the Contextual Identity Framework explicated in this paper. The variables, based on past studies, will enable the context of information seeking behavior to be empirically studied and will serve as useful moderators.

Empirical studies using variables incorporating different views of Context will also help to test and validate the framework. The authors will design one such study to test the impact of different contextual variables on the use of information sources. Findings from the study will help to shed light on the relative importance of the different views of context on source use and information seeking behavior.

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