ABSTRACT

In distinguishing between space and place, one approach is to contrast the physicality of space with the sociality of place: space directs attention to the material configuration of the physical environment while place indicates an individual’s understanding of the social behaviors that are appropriate within that environment. However, such a distinction juxtaposing the physical configuration of space to the social orientation of place is, on consideration, too limiting in its applicability. A more effective and generalizable distinction between space and place must also consider perceptions of context, implications of boundedness, and the influence of organizational structure. This broader approach to analysis of space and place can lead to the identification of meaningful differences that influence the functional activities of an information system and contribute to a greater understanding of what it is that constitutes an information environment.

INTRODUCTION

The challenge to identify a meaningful way in which to disentangle the concepts of space and place has intrigued philosophers and theorists from the time of Plato and Aristotle (Casey, 1997). However, the need to discriminate between space and place has become increasingly more important and more insistent in light of recent technological advances in the area of virtual reality. In addition, the explosion of digital information resources, available in the nonphysical milieu of conceptual
space, has pointed up the necessity for designing collections of resources as meaningful “information places” (or information environments) on the World Wide Web. Growing awareness that the sense of familiarity associated with a specific geographical place is as important on the conceptual level as it is on the physical level has encouraged researchers to consider how the use of traditional organizational structures, such as classification schemes and subject heading systems that might contribute to the recognition of “places” in intellectual space.

One recent attempt to address the problem of space and place contrasts the physicality of space with the sociality of place. According to this approach, space directs attention to the material configuration of the physical environment while place indicates an individual’s understanding of the social behaviors appropriate within a given environment. However, juxtaposition of the physicality of space with the sociality of place, while appealing for its parsimony, is ultimately too limiting in its applicability. A more generalizable, and therefore more workable, distinction between these two concepts must also consider individual perceptions of context, the implications of physical and conceptual boundedness, and the influence of the organizational relationships that bring structure to a place. A broader approach to the analysis of space and place, an approach that accounts for the roles of context, boundedness, and structure, might point up meaningful differences that could affect the functionality of information system and thus, contribute to a greater understanding of “information places.”

THE PHYSICALITY OF SPACE AND THE SOCIALITY OF PLACE

Dourish (Dourish, 2001; Harrison & Dourish, 1996) attempts to capture both the distinction between space and place and the potential applicability of this distinction when he differentiates between behaviors that are shaped by the space in which they are performed, and those which reflect the individual’s understanding of what is acceptable or expected within that place. Accordingly, he contrasts the physicality of space with the sociality of place: space directs attention to the material configuration of a physical setting while place focuses attention on the individual’s understanding of the social behaviors that are appropriate within that environment. Because the individual’s apprehension of place is governed by practices and conventions relative to a community of interest (Col), it reflects the social knowledge that is shared across the members of that community. Thus, a sense of place focuses the individual’s attention on those behaviors that are facilitated by an understanding of what is possible within a socially construed environment rather than on those activities that may be afforded by the physical arrangement of three-dimensional space. Dourish (2001, p. 89) illustrates this argument by pointing to differences in use that separate meeting rooms from dining rooms: although the material contents and the physical configuration of space is similar for meeting rooms and dining rooms, the behaviors that occur within each place are shaped by conventions and expectations associated with the encompassing social environment of business or home, respectively. It is unfortunate, however, that Dourish’s attempt to illustrate the socially construed understanding of place relies not on the individual’s understanding of what behaviors are acceptable within a specific place, but on very general categories (or kinds) of spaces.

Because recognition of place presupposes the individual’s familiarity with conventional behaviors that have evolved within a particular Col, Dourish (2001, p. 91) argues that the perception of space-as-place cannot be “designed,” but that it can be “designed for” by addressing the expectations of a community of users who share a common orientation to a specific task or goal typically undertaken by that Col. Thus, the activities and practices of such a community can
be supported by the conscious provision of a space in which activities of the CoI can be successfully undertaken (Dourish 2001, p. 93). Whether such a space is virtual or material is unimportant. What is important, however, is that this space should encourage the social apprehension of place by facilitating activities of the CoI and thereby, contributing to the emergence of shared expectations and behaviors.

Unfortunately, the attempt to distinguish between space and place, by contrasting the physical nature of space with the social orientation of place, is, on consideration, overly simplistic and ultimately too limiting in its applicability. A more effective and more generalizable distinction between space and place must also account for the influence of situational context; for the boundaries that demarcate a given place within its encompassing space; and for the structure of relationships, whether physical, social, or conceptual, that organize elements within a bounded space and thus, contribute to the individual’s perception of a space as a place. Inclusion of these factors in analysis of the concept of place can point up meaningful differences between space and place, differences that may have a significant impact on the functional activities of an information system and thus, contribute to a greater understanding of what it is that constitutes an information place.

ON CONTEXT

There is no universally accepted understanding of what it is to be “context.” One approach, described by Brézillon and Pomerol (2001) as the engineering approach and by Dourish (2004) as the positivist position, views context as a purely external phenomenon that can be operationalized, observed, and quantified. From this perspective, then, context would be defined as “the collection of relevant conditions and surrounding influences that make[s] a situation unique and comprehensible” (Brézillon & Pomerol, 2001).

In contrast, Nardi (1996) argues that the notion of context is not reducible to a simple enumeration of the objects, the people and the artifacts, that are involved in a particular task or activity. Rather, context must be understood as encompassing both external and internal influences. External influences will include the artifacts, the people, and the particular setting(s) associated with a given situation, task, or activity; internal influences will involve the personal objectives and goals that have been identified by the individual. She contends that the interaction between people and their artifacts can actually “transform” the relationship between individual and artifact, as well as the situation or activity in which they co-occur: “… context cannot be conceived as simply a set of external ‘resources’ lying about. One’s ability—and choice—to marshal and use resources is, rather, the result of specific historical and developmental processes in which a person is changed…. [T]he specific transformative relationship between people and artifacts … is at the heart of any definition of context” (Nardi, 1996, 76). Brézillon and Pomerol (2001) contribute to a deeper understanding of the subjective aspect of context by elaborating on Nardi’s observations regarding transformative relationships. They argue that, by actively focusing on or participating in a particular goal or activity, the individual’s perception of the surrounding context is transformed into functional knowledge that supports identification of appropriate actions, and is subsequently drawn upon to anticipate the outcome of alternative behaviors.

Dourish (2004) seems to echo Nardi’s observations regarding the transformative nature of context when he describes context as the result of interactions that cannot be reduced to constituent parts. Furthermore, he makes an important contribution to the analysis of context when he sets out four fundamental assumptions that he claims would provide a theoretical framework for the consideration of context: (1) context is not a given, but is related to a particular object,
situation, or activity; (2) the features of context are dynamic and (3) relevant to the immediate situation; and (4) context is generated by, and maintained within, the immediate situation or activity. Unfortunately, however, these assumptions focus exclusively on the external, objective aspects of context, and do not address either the internal, subjective, and transformative contributions of the humans involved in a given situation or the transformative nature of the interaction between the individual and her artifacts. As such, Dourish’s assumptions fail to take into account the dual, internal-external nature of context that is characteristic of the “transformative relationship” identified by Nardi (1996) and elaborated by Brézillon and Pomerol (2001).

Barsalou (1989) contributes to an understanding of the psychological (or cognitive) origins of context when he describes the factors contributing to the individual’s conceptual framework. He observes that the conceptual framework the individual associates with a situation or activity, the context within which the individual situates him/herself and his/her activities, is dynamic and frequently varies from one interaction to the next. At any point in time, this conceptual framework will be comprised of three types of information: (1) external information that is present for and consistent across all occurrences of the situation regardless of immediate circumstances; (2) external information that is associated with, or cued by, circumstances in the immediate situation; and (3) internal, goal-related or experiential information that is brought to the situation by the individual. External, context-independent information provides stability of reference across multiple occurrences of a particular situation because it consists of features that will be found in any instance of the same situation. In contrast, context-dependent information is unique to the immediate situation: it is information that is contributed by external data about the relationships between the individual and his/her artifacts within the immediate setting (for example, expectations that may differ across instances of the same situation based on data acquired from intervening experiences); or information that is internally generated by the individual in the form of current personal goals.

Analysis of these several approaches to an understanding of context points up the functional role of context in shaping (or reshaping) the conceptual framework within which behavior occurs and that influences the activity of the individual. Adopting the position advocated by Nardi (1996) and by Brézillon and Pomerol (2001), context is not a given but a property of the immediate situation that emerges from interaction between the individual and his/her artifacts and environment. Context is thus the individual’s potentially dynamic abstraction of the physical, temporal, social, or affective conditions that characterize a particular interaction between the individual, his/her artifacts and the immediate setting. It is context, then, that not only emerges from, but also transforms the individual’s understanding of, and interaction with, a space as a place for activity. As such, the context associated with a given situation cannot be predefined, or designed, as Dourish argued for place, because it is constructed within and emerges from the conceptual framework of the individual.

While the individual’s construction of a meaningful context is central to his/her identification of appropriate behaviors and the formation of realistic expectations within a given situation, the question remains as to whether context alone is sufficient to transform the space of activity into awareness of place? If context is understood as the individual’s conceptual understanding of the objects relevant to the immediate situation or activity, if context is comprised of or emerges from the objective, external information associated with or cued by circumstances in the immediate situation, then the individual’s recognition of context would have the potential to infuse the activity space with a sense of place in just the way that Dourish (2001) proposes and context could,
indeed, be “designed for” a predetermined CoI. That is, provision of an appropriate context would support the individual’s apprehension of place by focusing attention on those activities and practices of value for a known community of users.

But if context is understood as the conceptual framework that encompasses both internal and external factors and mediates the individual’s understanding of a situation or activity within a given setting, if context emerges from the interaction of external information about artifacts and relationships within the immediate situation and internal information about individual experiences and goals, then Dourish’s approach to an understanding of context is misleading. For Dourish, context is seemingly independent of individual users and therefore, for any given situation, consistent across all members of a CoI regardless of individual experiences and objectives. If context emerges from, mediates, and ultimately transforms the individual’s understanding of the participants, artifacts and settings involved in a particular activity or situation, if context reflects a personalized and potentially unique comprehension of the immediate situation, then context is not independent of the individual. Furthermore, because apprehension of context and, by extension, awareness of a sense of place cannot be assumed to be stable across the members of a CoI, context can neither be designed nor designed for.

**ON BOUNDEDNESS**

The juxtaposition of the physical configuration of space against the social orientation of place is disingenuous because it seems to imply that the social subjectivity of place is somehow independent of the material objectivity of space. It should be obvious from the previous discussion of context that the sense of place, though subjective and frequently personalized, relies upon objective recognition of the participants, artifacts, and setting(s) involved in a given activity or situation, as well as comprehension of the relationships that exist among them. As Malpas (1999) observes, any conceptual framework generated by the individual, what he describes as “the mental life of the subject” (p. 177), depends on the individual’s involvement with his/her surroundings: “… it is only in, and through our grasp of, the places in which we are situated that we can encounter objects, other persons or, indeed, ourselves” (p. 177). Whether the particular surroundings with which the individual engages are physical, virtual, or conceptual is immaterial. What is important is the recognition that the individual’s construction of context and subsequent perception of place are necessarily spatial, if only in a metaphorical sense, in that they occur within a specific space. Place, understood here as the individual’s understanding of the behaviors that are appropriate to, and facilitated by, a particular configuration of relationships within a recognizable setting, cannot be abstracted from the actual configuration of relationships that constitutes the physical, virtual, or conceptual space within which a place is contained. That is, a place and the activities associated with that place cannot exist in a void. Rather, as Malpas (1999) contends, “The connection between place and activity, then, puts certain constraints on place, constraints that are reflected in the bounding of places in ways that … are tied to the boundaries on capacities for action” (p. 171).

Thus, a sense of place is necessarily characterized by its boundedness, by the very fact that it serves as a container for activity by embedding within its boundaries those relationships, features, and functionalities that support the activities of a particular community, and by the fact that it is itself contained within (or bounded by) a larger, potentially undifferentiated space. Recognition of a particular place and, more importantly, the apprehension of a sense of place require the comprehension of a constrained, spatially cohesive and conceptually unified space-as-place that has been carved from the surrounding environment.
by the need to accomplish a given set of goals or activities. Malpas (1999) contends that, because the sense of place is necessarily tied to the capacity for action and to the expectation of the individual to be able to perform certain behaviors within that place, “the less a place is encompassed by our capacity to act or to react, the more abstract must be our grasp of that place” (p. 171). Thus, the boundedness of place is not to be confused with physical demarcation in concrete space. While the boundedness of a specific place is necessarily spatial in that it demarcates a cohesive and contained area of activity within a larger surround, the individual’s sense of place represents not the place itself, but the potential for action or, as Malpas points out, for reaction. As such, the concept of place need not be constrained by the physicality of a material space, but may actually involve the individual’s recognition of a conceptual cohesiveness that unifies the constituent elements of a specific situation, a cohesiveness that marks the situation not only as bounded, and thus as distinct from its immediate environment, but also as self-contained and, therefore, independent of the larger space within which it occurs.

ON STRUCTURE

The recognition of place is frequently subjective, influenced as it is by the individual’s interpretation of context-dependent and context-independent information abstracted from the physical, temporal, social, affective, and/or spatial elements that mediate the individual’s understanding of, and interaction with, a particular situation. More importantly, a sense of place relies not only on the individual’s subjective interpretation of objective elements, the participants, artifacts, and setting that populate a particular activity or situation, but also on his/her comprehension of the relationships that exist among those elements. If the concept of place is understood as the individual’s appreciation of the behaviors appropriate to a particular configuration of elements within a bounded space, then a sense of place must depend, in large part, on the individual’s awareness of the web of relationships that link the physical, digital, and conceptual elements within a space-as-place. These relationships, which contribute to or even determine the individual’s understanding of context, comprise the structure of the situation.

It is this structure of relationships that organizes the various components of a situation, and thereby contributes to a sense of place through the establishment of meaningful, knowledge-rich links that not only connect the physical, social, and conceptual elements of a given situation, but also integrate them within a unified and coherent whole. As for the apprehension of context, there is a strong interdependence between the structure of a particular situation and the individual who actively participates in that situation: although the structure of a situation is relatively stable and “cannot be grounded in the existence of an independent subject,” as Malpas observes (1999, p. 185); its contribution to the identification of space-as-place cannot be separated from the subjective understanding of the participating individual. Unlike the relative objectivity of a situation’s spatial boundedness, apprehension of structure and context is necessarily tied to the individual’s interpretation of objective, context-independent information and subjective, context-dependent information (Barsalou, 1989). Thus, although it is the unified structure of relationships that must ultimately determine the character of a specific place (Malpas, 1999, p. 185), the meaningfulness of a relational structure demands interdependence between the situation and the individual, whose understanding of both structure and context will necessarily be biased by the experiential knowledge he/she brings to participation within a given situation.

The dual nature of the interpretative process, the reliance on both objective and subjective sources of information, is only one way in which structure and context are linked in the determina-
tion of place. In fact, structure and context are so closely interwoven that it would be virtually impossible for the individual to develop a sense of place without first having arrived at an implicit or minimal awareness of both the structure and the context of a situation. More importantly, perhaps, because the structure of relationships within a given situation can be understood as governing the emergence of context, it can be argued that the presence of a unified and cohesive structure of relationships plays a more important role in the perception of place than does the apprehension of context.

ON THE NATURE OF INFORMATION AND INFORMATION PLACES

Information

Discussions of what it is that distinguishes a place within the larger expanse of undifferentiated space is of general interest for the emerging knowledge domain known as the philosophy of information and, in particular, for an understanding of the “dynamics of information”: the composition of information environments; the constitution of information life cycles; and information processing (Floridi, 2002, p. 15).

Obviously, an understanding of place, and its relationship to the phenomenon of information, is key to an appreciation of what it is that constitutes an effective “information place” (or information environment). However analysis of the relationship between the concept of place and the development of an information environment must begin with a definition of information itself. Over the years, researchers and theorists have offered numerous definitions of information, but they have consistently failed to reach even a semblance of consensus. In fact, many of these definitions are either blatantly contradictory or overly ambiguous in their generality. At a more abstract level, Floridi (2004) has identified three approaches that dominate attempts to define the nature of information: information as reality (or ecological information); information for reality (or instructional information); and information about reality (or semantic information). The approach adopted in this chapter is that information is inherently semantic, and therefore about reality. Following Bateson’s observation that information consists of “differences that make a difference” (Bateson, 1979, p. 99), information is defined here as an emergent property that is the result of individual experience, and reflects or represents meaningful differences (or data) that the individual has acquired about his/her surroundings.

In line with the definition of information, an information space is defined as a collection of physical, digital, or virtual resources consisting of an undifferentiated accumulation of resources that can be used by the individual to identify differences that would make a difference. In contrast, an information place, identified here as an “information environment,” is understood as a collection of resources that has been intentionally organized to address the specific needs of a knowledge domain, or CoI, whose members share a common interest, activity, or goal.

Information Spaces and Information Places

It has been argued that an in-depth understanding of the concept of place may be relevant to the development of effective information environments. Analysis of the contribution of context, boundedness, and structure to the distinction between space and place could point to features or functionalities that distinguish information places as environments from information spaces as collections, differences that could influence the development of an information space and even contribute to its emergence as an information place.
What gives a collection of resources a sense of place, and transforms an information space into an information environment, is the introduction of context, boundedness, and structure, those elements that serve to establish a sense of place and, in consequence, to shape the utility of the collection for the members of a CoI. Transformation of a collection of resources (“an information space”) into an information environment (“an information place”) must begin by addressing the fundamental features of a resource collection that shape the development of an information environment, and determine the expectations of a CoI for an information collection: audience (the strategy), content (the scope), and organization (the structure) (Garrett, 2002).

Strategy establishes the intended purpose of the information environment. It identifies the audience or CoI that is to be targeted, and delineates projected outcomes and expectations for members of the targeted CoI. Specification of the strategy as purpose and projected outcomes contributes to the emergence of context by defining the audience for the resource collection, the type(s) of users who will actively participate in the activities of the information environment. In addition, the statement of strategy begins to define the boundaries of the information environment by identifying both a content of interest to the CoI and the expectations of CoI members.

Scope consists of the features and functions to be provided by the information environment. It provides an explicit statement of the range of content in the collection, and the specific behaviors or activities that will be supported to facilitate the outcomes projected in the statement of strategy. Identification of the breadth and depth of content formalizes the boundaries of the collection by setting specific limits on the range of content and the activities that are possible within the information environment. In addition, specification of the activities that will be supported by the collection contributes to the emergence of context.

Structure is the single most important element responsible for the transformation of an information space into an information environment. Structure converts an undifferentiated accumulation of resources into a unified and cohesive arrangement of resources organized by a system of interrelated, knowledge-bearing relationships, relationships that will, ideally, indicate not only the similarities within and across categories, but also the differences between them. It is necessary, then, for structure to address the organization of a resource collection by specifying the conceptual basis for grouping similar resources, and by establishing the semantic relationships that will organize those groupings within a unified and meaningful structure. Structure defines the contours and boundaries of the information place in line with the content, functionalities, and expectations of the target CoI specified in the statements of strategy and scope. More importantly, while organization of the relationships that comprise the structure contributes to the emergence of context, the perception of the collection as a cohesive and bounded unity is requisite for the individual’s apprehension of a resource collection as an information environment.

Information Places and Spatial Analogies

To be effective in the transformation of an information space into an information environment, the system of semantic relationships that organizes the resource collection and establishes the structure of the information environment must evoke for the user an analogy with a concrete spatial structure. Spatial analogies exploit the individual’s familiarity with the structure of objective, everyday physical spaces in order to make abstract concepts and relationships comprehensible. Just as an alphabetical arrangement of resources is universally accessible because the alphabet is familiar to everyone, spatial metaphors
are meaningful because they build on experiential knowledge that is shared across communities; knowledge of the physical environment as well as knowledge of how individuals interact with their material surroundings.

For example, the concept of a “chat room” capitalizes on the individual’s familiarity with rooms as self-contained spaces, in this case, as a self-contained virtual space that is “bounded” by the explicit specification of a topic that is, by definition, of common interest to all participants in the chat room. Similarly, the emerging profession, known as “information architecture,” relies on a spatial analogy with traditional architecture. An architect partitions the interior space of a building into rooms (or “places”) according to the activities that are projected to occur in those spaces, and then organizes those places to facilitate the flow of similar or related activities, for example, locating the dining room in close proximity to the kitchen relates spaces intended for the preparation and consumption of food. In similar fashion, the information architect creates a structure of relationships first by partitioning a collection of resources based on similarity of features or use (the activities supported by the collection), and then organizing those initial groupings to facilitate accessibility based on common functionality or intellectual content.

It is noteworthy that, even though an alphabetical system is universally accessible, it fails to create a sense of place precisely because the simple ordering of resources, according to a simple alphabetical or numerical system, cannot identify groupings of related resources or organize those groupings into a coherent system of relationships. More importantly, such an arrangement cannot evoke a spatial analogy that will facilitate the individual’s comprehension of the content and scope of the collection, or facilitate his/her interaction with it.

Dourish and Chalmers (1994) point out that spatial models have two distinct applications. The first of these, the provision of maps of actual physical spaces, is obvious. The second, more common but less obvious application, involves the “mapping” of semantic relationships onto a spatial arrangement, an application that could be restated as the popular aphorism “form follows function.” Although Dourish and Chalmers describe spatial models as mapping semantic relationships onto a spatial arrangement, it is more appropriate to say that a structure of semantic relationships between resources and groups of resources responds to the functionality of an information place and thus, determines the spatial arrangement.

Analysis of the semantic intent, encapsulated in the aphorism “form follows function,” can illustrate how the structure of relationships, and thus the spatial analogy evoked by the organization of resources, must respond to the functionality of the collection itself. The nineteenth century Chicago architect Louis Sullivan is credited with originating the design principle captured in the phrase “form follows function.” There is, however, a common misconception that Sullivan had intended that the architectural form of a building should reflect the function for which the building was designed. What Sullivan had actually proposed, however, was that form, the structure of a building, would be determined by or follow the functionality of the materials that were to be used in its construction. By extension, then, the structure (the “form”) imposed on an information space, the groups into which the content is organized and the semantic relationships established among resources and groups of resources, will be driven by the content (the “material”) that is required to support the activities and outcomes (the “functions”) specified by the site’s strategy and scope.

**CONCLUSION**

The contributions of structure, context, and boundedness, in evoking a sense of place, indicate the value of **place** in the analysis of information
environments. For example, the sense of place that can follow from the individual's recognition of the structure of relationships in an information environment produces functional knowledge that cannot only mediate immediate information seeking behaviors, but can also be used to anticipate the results of future interactions with the information environment.

Rejection of definitions of place, grounded in the physicality of space, in favor of the conceptualization of place as bounded potential contained within a larger expanse of physical or virtual space, points up, as Malpas (1999) observes, "an inevitable multiplicity in the ways in which place can be grasped and understood: place may be viewed in terms that emphasise the concrete features of the natural landscape; that give priority to certain social or cultural features; or that emphasise place purely as experienced" (p. 173). Nonetheless, the apprehension of place associated with a situation or setting is dependent on the perception of structure, on the influence of context, on recognitions of the boundaries that circumscribe a setting, and on factors, such as spatial analogies, that influence both the individual's comprehension of structure and the emergence of context. Place is both subjective and dynamic; but a sense of place that persists across any two instances of the same situation or activity will depend on the individual's apprehension of similarity not only of context, but of the internal structure of the situation; apprehension of similarity that results from the redundancy of context-independent information provided through the situation and context-dependent information contributed by the participant.

Place is a potentially powerful construct applicable within and across a multiplicity of intellectual domains. Removing place from constraints imposed by an overly simplistic understanding based on physical spatiality and emphasizing, instead, the inherent boundedness of place within a broader setting, whether concrete or abstract, permits the extension of place as an explanatory construct in a process of comparing and contrasting the form and functionality of information spaces and information environments. For example, recognition of the boundedness of place, as inherent limitations on the potential for action, can be applied to innovations in the configuration of information environments, and to optimization of the organizational structures and functional properties that influence user expectations and behavior within an information environment or the systemic properties and forms of interaction that constitute these environments.

REFERENCES


