Places on the Net

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1 ABSTRACT

In this paper we aim to build an understanding on how the concept of place is encoded in the design of online communities. Current activities in such communities suggest that users appropriate virtual space through (self)-representation. In general, the investment with meaning of space is likely to define places on top of it. So we are interested to find out whether places emerge in cyberspace. Brief analyses of existent online communities show that the understandings of space and place vary from one community to another, which relates to their capability to connect with the local place-based communities. Searching for a theoretical framework that would explain these observations, we explore first how different constructs of place associate in theory with various views on the nature of space. Second, we are interested to find out how users perceive cyberspace, by questioning whether an analogue to Lynch's taxonomy of images and the use of cognitive maps are meaningful in this context. We wish to use this information in future design of hybrid online communities, in order to bridge the virtual with the physical space for social activities.

2 INTRODUCTION

At present public life happens in the physical as well as in the virtual space. Most of the time, however, the public activities in these spaces are cut off from each other. There are several experiments and practical efforts regarding online communities over geographical locations (hybrid), which aim to bridge this gap. Sociologists have experimented with different notions of hybrid communities in projects like Netville (Hampton and Wellman 2003), the Blacksburg Electronic Village, and more recently e-Neighborhood (Hampton, 2007). Although such studies have documented a positive impact of the Internet technology on social capital, they have not proven yet the sustainability and effectiveness of the employed tools and software in different contexts. Members' persistent engagement in the activity of these communities is key to their success over time. To stimulate initial participation, current operational hybrid online communities like i-neighbors, Meetup, and peuplade generate a tangible value for users. For example, recommendations, chances for socialization, exchange of services and organization of daily community activities such as car-sharing, baby-sitting and driving/walking-kids-to-school cooperatives, food cooperatives, elderly-care, and even block-parties. Despite these efforts, they rarely succeed in building a "community" that defines its identity, shared interests and visions for the future. At this research stage, we believe that there are two major aspects that may contribute to such hybrid communities, if included in the social software design, namely explicit common interests and place-like spatial correspondences.

Unlike current Internet-based communities that bring together people with common interest, hybrid communities need to create shared interest among a diverse group of people living in the same neighbourhood with relatively limited choice for social exchanges. In addition to limited opportunities for shared interests and taste, one has to address cultural differences, educational or even language barriers, digital divide issues, busy schedules, timidity in face-to-face contact, lack of trust, and so forth. In our previous work we have focused on how to build common interest in this context (Apostol, Antoniadis, Banerjee 2008a, 2008b).

The concept of place is the second critical issue that we question in our study for building successful hybrid communities, and the extent to which they manage to create sustainable connections between the physical and the virtual space. In this paper we make a first effort to address this aspect. Our goal is to identify some of the software and urban design features, which we may use in the future, that facilitate links between the two spaces for social life. We recommend the collaboration between planning and computer science research, particularly planners' engagement in software design, as we believe that a holistic approach to designing place-based online communities could result in turning virtual space from a place of isolation into a driver and catalyst for physical interactions, civic engagement, and community building.

Virtual space is structured by the underlying communication network (i.e. the Internet), the digital information that is exchanged between the nodes of this network (e.g. text, images, sounds, (3D) 3-

dimensional representations) and the computer software that defines the rules for using and transforming this information. The possibilities to structure virtual space are unlimited, due to the technological progress, on the one hand, that allows representations of the infinite human imagination, on the other hand. So since the Internet's first years, different communities perceived cyberspace in different ways, from a flat space where members could exchange information (USENET) and socialize (IRCs), to an imaginative one where users could build virtual worlds either to play role games (MUDs) or to socialize, even if this was done only through text-based representations (LambdaMOOs). Today, there is a new generation of online communities, which expresses the same tension between either using cyberspace for building 3D virtual worlds, or mainly exchanging information content. Examples are communities like World of Warcraft, SecondLife and Twinity on the side of 3D virtual worlds, and numerous thriving online communities like Flickr, Facebook, and Slashdot on the other side.

As more and more people join the Internet and technology advances rapidly, there is an increased complexity of uses of the virtual space. In this situation virtual space's effect on the behaviour of users and society in general makes its design critical. Our concern is how to turn it from a space of social exchanges (sometimes anonymous) with limited degree of responsibility and commitment into a driver that promotes social activities in the neighbourhood and healthy place-based communities. Particularly, within our attempt to bridge the physical with the virtual space, we inquire in this paper how one could conceptualize virtual space from a place-focused perspective. Usually place is defined as physical space that users invest with meaning. The Information Age and the network society impact not only space, but also transform the symbolic modalities to define space and place (Castells 2005), as new technology and innovations in general stimulate the construction of meaning. In view of that, we suggest expanding the notion of place to the virtual space.

For that we first overview the different constructs of space and place, in order to understand the nature of cyberspace and its possible meanings. Second, we propose to look at the experience of virtual spaces by means of Kevin Lynch's taxonomy of images. What are the analogues of landmarks, nodes, paths, if they exist in the virtual space? Is it realistic to ask people to draw maps of their images of "places on the Net" the way Lynch had his subjects draw maps of their cities or neighbourhoods? To what extent it is interesting to incorporate such categories of representation in the analysis of cyberspace, if we aim for instance to design and experience a virtual environment connected with the physical space?

To this end, we are interested to find out how to connect the various representations of virtual space with the existing physical elements that spatial users invest with meaning. In other words we would like to find ways to associate the places on the net (e-places) with those in the physical environment, and assess the potential benefits of such endeavours. We believe that, by adding a broader understanding of the concept of place and its connection with online communities, in future studies we could come up with useful representations of this potential relation. We expect that these representations constitute an important building block leading to more sophisticated hybrid communities that bridge the physical with the virtual space for social life.

3   SPATIAL REPRESENTATION ON THE NET

In this section we compare and contrast existing online communities based on three place-related dimensions in their software design: a) representation of places within their interface, b) their connection with the physical space, and c) expression of identity (e.g. user, community) and means of representation. To define the starting point we choose some examples of projects or existing communities showing distinct properties with respect to these dimensions. The different communities are representative examples that cover an entire spectrum in terms of their connection to the physical space, which is our final objective (the summary of this description is depicted in Table 1). Later in the paper we discuss how one could study the effect of such design choices on users' perception of place in cyberspace, and how one can intervene in the community design in order to achieve our high-level objective presented in the introduction.

War of Warcraft is the most popular "massively multiplayer online role-playing game" (MMORPG), with 11.5 million monthly subscribers at this moment. It creates a completely fictional virtual world in which there is no connection with the physical space. As with other MMORPGs, within the game's 3D world players control a character avatar that could explore the landscape, fight monsters, complete quests and interact with non-player characters or other players. Second Life is also a 3D virtual world, which in contrast to the War of Warcraft lets users build freely their avatar, natural environments (i.e. landscape, buildings, paths), even the type of social activities that take place (from chat-room like discussions to virtual dancing

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and sexual intercourse). Hence this virtual environment's connection to physical space depends on its "residents", as users are called in Second Life. In this community, the huge number of visitors and publicity has attracted many companies, cities, and even embassies to create their own "islands". However, not many users become "permanent residents", despite the huge hype that was created around Second Life. The more recent Twinity is another experiment with an online community that gathers "users" within a 3D digital representation of real places in Berlin. The virtual physical proximity of avatars offers opportunities for shared experience in the various community rooms. Based on the virtual encounters and exchanges, this online community aims to encourage real world interactions. We are not certain, however, whether real places' replicas alone are effective in stimulating users to shift to the physical space, or in discouraging them, as one may argue, and choosing to further explore only the realistically represented cyberspace.

Currently it occurs that in order to exchange information and to socialize, the majority of the numerous new Internet users prefer communities like Facebook, MySpace, and Flickr. These communities have almost no built-in notion of place or connections to physical space. But they offer to their members a well-defined space to build a virtual home (homepage) and represent themselves. The connection with physical space is done through specific interest groups created by the users. These communities provide well-designed menus that help to navigate their space, although they remove almost completely the notion of "paths" by creating an efficient but flat information exchange platform.

Online Community	Place representation	Identity	Connection with physical space
WikiCity	Sensors, mobile devices; product, image	Real	Direct connection (Real time)
Front Porch Forum	Text, maps; image, meaning	Address, name, occupation (bias for real)	System-defined (Neighbourhood name/boundaries)
Peuplade	Text, maps; image, meaning	Address, name (bias for real)	System-defined (Representation on *google* map)
i-Neighbors	Text; image, meaning	Real Name	System-defined (Neighbourhood name/boundaries)
Meetup	Text; image, meaning	User defined	System-defined (City reference)
Panoramio	Maps, photos; image, meaning	User defined, limited profile information	System-defined (Representation on *google* map)
Facebook	Text; image, meaning	User defined (strong bias for real), rich information	User-defined
Twinity	3D representation	User defined (bias for real)	System-defined (replicas of the physical space)
Second Life	3D representation	Virtual (custom)	User-defined
World of Warcraft	3D representation	Virtual (system-defined)	No connection

Table 1: Examples of different online communities and their interpretations of place, links to physical space, and user identity

We synthesise briefly the observations regarding current successful online communities. To represent places most of these communities use text and images, and only a couple of them experiment with 3D representation of real places. In terms of user identity, the three categories span from virtual avatars in the 3D virtual worlds to either real identity or hybrid personas that leave room for imagination, even if in many cases the system recommends using real identities. As for the connection of these online communities with the physical space, the solutions cover the spectrum from zero to inevitable "real time" contact, passing

through opportunities for users to define this link, yet most of the time this definition is a very basic one that comes with the software design.

Building on the success of these online communities, and based on a critical mass of Internet users in many neighbourhoods, a new type of online community was born recently. We call it *hybrid* community, due to its explicit connection with the physical space. Such community provides links between the physical space and its members' exchanges and activities online, in order to translate the social life in the virtual space into material consequences in the neighbourhood.

At the city level, *Meetup* is an example of such a community that employs a loose connection with physical space. It brings people together online based on common interest, in order to arrange meetings in physical space either to participate in events or to take tours in the city. The meeting points are in the physical space, and users themselves define them in free text form. At the neighbourhood level there are communities like *i-neighbors*, *Front Porch Forum*, and *peuplade*, which enable users living in close proximity to communicate, exchange services, and the like. In the context of our analyses their main difference lies in the ways they have chosen to represent a specific neighbourhood. For example, *i-neighbors* community divides cities into different neighbourhoods based on their real name, by drawing boundaries. Without requesting personal information, the software allows users to choose among the presented choices. *Front Porch Forum* software asks users to provide their real physical address, name and occupation, and then distributes them into pre-defined bordered neighbourhoods. In *peuplade* users define their home address on a *google* map, without any distinction according to neighbourhood boundaries. Based on proximity, members have a real view of their online neighbours on the map.

Mapping is a ubiquitous way to represent physical space. Maps are used in hybrid communities like *peuplade* and *Front Porch Forum*, but also in a wide variety of other more general place-based communities, which exploit the flexibility of *google maps* as a tool to attach any type of information to a real map (e.g., *google earth*, *Panoramio*, geotagging, photos following the description of events).

Finally, in the MIT research project *WikiCity* Calabrese et al. propose "a platform for storing and exchanging location- and time-sensitive data" that facilitates users' access to such data through "mobile devices, Web interfaces and physical interface objects", in order to imagine "real-time" urban environments that connect the physical with the virtual space in "real-time" (*WikiCity*). Making online information available through physical interface objects is a way to connect physical and virtual space. In this project, place is interpreted as the entire city that is seen as a collection of artefacts (refer to Madanipour 2001).

Our goal is to understand how users conceive place as a function of the community design and of the activity that takes place wherein, which is not under the full control of the software designer. We do not intend to mimic the physical space into the virtual as an escape alternative. But rather we would like to consider correspondent symbolic links between the two spaces, which facilitate cognitive associations with the physical space also through stimulation of human imagination, to enrich eventually the physical interactions. All these aspects are subject to cultural differences, and depend upon the type of local communities that use the virtual space. In addition we stress in this study the importance of time and meaning. For example, *Social Patchwork* is a project at the Kelvin Grove Urban Village, Australia, that combines the use of narrative and new media in community engagement and urban planning. Its *History Lines* component maps residents' previous locations and connects them with personal narratives, in order to stimulate common interest at the intersections of these stories.

4   THE NATURE OF SPACE AND PLACE

By comparing these social spaces on the Net, we see that space and place could be interpreted in different manners. To understand what is at the source of these interpretations, we present here a brief introduction to the concepts of space and place as presented in urban studies (i.e. Lefebvre 1991, Madanipour 2001, Arefi & Triantafillou 2005, Harvey 2006).

On the nature of space David Harvey proposes three views namely absolute, relative and relational space (2006). In his words, the *absolute* space is space being a "thing in itself" independent of the matter, like in Descartes' and Newton's view. In the case of absolute space, time does not play an explicit role in spatial formation. The *relative* space arises from relationships between objects, where the temporal dimension has its role and significance for this construct, in spite of time being fixed like, say, in the case of the modern

time of clocks and watches. The *relational* space cannot be conceived in separation from time, and is "regarded in the manner of Leibniz, as being contained in objects in the sense that an object can be said to exist only insofar as it contains and represents within itself relationships to other objects" (Harvey 1973, cited in 2006, p.271).

Note that the three different understandings of space coexist, and they are employed respectively to the human spatial practice. Nevertheless, it is important to mention that absolute, relative and relational spatial perspectives do not mutually exclude one another, and one could "keep the three concepts in dialectical tension with each other and [to] think constantly through the interplay among them" (Harvey 2006, p.276). Within the dialectical tension of this framework, Harvey illustrates possible meanings for space with Lefebvre's dialectical triad of spatial production: material space, representations of space, and spaces of representation (1991). That is to say that each of the absolute, relative and relational spatial constructs manifests in human practice a) as tangible or experienced space through its materiality, b) as conceptualized space of the mind, and c) as lived space of the inner world through our emotions, desires, imagination, memories and so forth.

Now in accordance with Harvey's classification of spatial views, we can look at Ali Madanipour's three categories of understanding the city (2001). One manner of understanding the city is as "a collection of artefacts", for example during the 1960s' modern planning, and still today is considered so in many cases. In this frame, the *absolute* space plays a predominant role in the conception of urban development, with the consequence of experiencing urban space in its materiality and detached from temporal and cultural particularities. In regard to the *relative* nature of space, the city is conceived as "an agglomeration of people or a dynamic view of social relations", which is the second category in Madanipour's explanation. In this instance social space is predominant, and time becomes relevant for the changes and exchanges within social networking. The third point of view on the city is phenomenological that corresponds to shaping *relational* space, if we understand by phenomenology the study of meaning and of human experiences such as perception, emotion, desire, volition, imagination, thought, action etc.

How does the concept of place fit within this theoretical framework? And to begin with, what do we call place? According to Arefi & Triantafillou's framework for the pedagogy of place (2005), there are four ontological constructs of place. First, there is place as *a set of visual attributes* like in Lynch (1960) and Jacobs (1961) that takes into account the contradictions and complexity within the spatial images and syntax. Second, place is seen as *product* in urban studies that look at spatial morphology and focus on policy making and problem-solving, i.e. Loukaitou-Sideris & Banerjee (1998), Boyer (1996a), Sorkin (1992) etc. Third, when the focus is on the spatial production, place is considered as *process* to examine transformations throughout time like in Lefebvre (1991) or Harvey (2000), and fourth, place is explored as *meaning* in studies that account for the values, symbols, phenomenological intuition etc, e.g. Appleyard (1964), Arefi (1999), Whyte (1980). These references belong to Arefi & Triantafillou's framework. We adopt these categories to interpret place, in order to see if we could explain space, precisely cyberspace, from a place-focused perspective. For that in the following we aim to integrate place within the views on the city and the nature of space.

To associate these constructs of places with the above spatial views, we may say that conceptions of the place as *image* and *product* pertain to the city view as a collection of artefacts that could be approached from the perspective of *absolute* space, while place's constructs as *process* and *meaning* pertain to the city shaped of space understood in *relative* and *relational* manners. However, we have mentioned above that the three states of space are not mutually exclusive, and that is true also for these four constructs of place.

In understanding places, on the one hand, the *absolute* space does not bring sufficient explanatory features that relate to the quality of place in terms of its lived experience. On the other hand, in *relational* space processes define their own spatial frame, as well as in *relative* space. In this case, besides being "impossible to disentangle space from time" (Harvey 2006, p.273), places are predominantly social constructions. More importantly, these are characteristics also of the cyberspace, which is not only a social product, but it is tightly shaped through temporal relations.

Until recently the virtual space (mainly the Internet platform) was shaped as a collection of content and information that visitors used to browse, acting as data users without interfering in the design of the space. It was an age similar to the times when the city was considered a collection of artefacts where professional

designers shaped absolute space without the participation of community members. In the physical space, the social turn in understanding space as relative and relational brought about the need to engage communities in the development of their neighbourhoods. Comparably we are at a moment in the evolution of cyberspace design, when the users of social software begin to appropriate, define and shape their particularized space, beyond the full control of software designers (i.e. Web 2.0, communities like *Friendster* etc). Even more, users' behaviour suggests a sense of belonging and identity in the virtual space. As appropriation of space manifests through (self-)representation (Lefebvre 1991), current practice in online communities shows that users appropriate space, which acquires meaning from the language employed and through frequent system operation and process reiterations.

Since the early years of online networking, virtual space has been imagined in connection with the physical one through a place vocabulary such as room in "chat room", highway in "information superhighway", frontier in "electronic frontier" or city in Mitchell's "city of bits" (refer to Rheingold 1993, Boyer 1996b, Adams 1997, Mitchell 1995, 1999, 2003). Physical references help the organization of cyberspace by making it easily legible and also by implying actions over time such as entering, dwelling, surfing, building, inhabiting etc. Is it then possible to think about the construct of places on the Net? If there were an emergence of *e-places*, to which of the spatial and place categories would they correspond? In Table 2 we propose some possible illustrations of the spatial constructs introduced in this section.

Space Construct	View on the City	Physical Space (place)	Virtual Space (e-place)
Absolute space	Collection of artefacts	Objects: land parcel, house, square, Product: archetypes, typologies Image: landmarks, edges	Interface and information content, homepages, web addresses (*url*)
Relative space	Agglomeration of people & social relations	Areas: square, street, tracks, neighbourhood, region Image: nodes, paths, district	Online communities sites, interest groups pages, chat rooms, *wikis*
Relational space	Phenomenological point of view	Process: transformations, flows Meaning: symbolic connotations, memories, temporal associations, journeys, *habitus*, familiarity	Records of past interactions, journeys and events, collective memory of *e-place*, synchronic exchanges

Table 2: Constructs of Space and Place

To imagine *e-places*, we understand that they are socially constructed through exchanges within nodes and flows, and strongly determined by the space-time link of the *relational* space of the Net. As places, they might not be seen as products, yet they could be interpreted certainly in terms of image, process and meaning. With respect to place as meaning, there are symbolic connotations that people attach to certain spaces. They may regard temporal dimensions or animated scenes created in places that reflect attitudes, positions, the relations that individuals have with the places they inhabit or move through. For instance, the anthropological place "includes the possibility of the journeys made in it, the discourses uttered in it and the language characterizing it" (Augé 1995). The journeys or paths in cyberspace play an important role in its definition, and to that we will pay attention later in this study. Moreover, through Bourdieu's notion of *habitus*, Patsy Healey defines the place as "a material and social space, a *habitus*, infused with meanings and transected by relations through which particular "cultural capitals" are formed and transformed" (1999). In the city, by means of appropriation, individual's spatial experience could become a promoter of meaning:

"A settlement should permit an *unfolding* creation of meaning, that is, a simple and patent first order structure which allows a more extensive ordering as it is more fully experienced, and which encourages the

construction of new meanings, through which the inhabitant makes the world his own (inviting ordering versus an orderly city)" (Lynch 1981, p.144).

Going beyond definitions and aiming to understand place's quality, again we could parallel *e-places* with physical places. For example, in a phenomenological, relational view Lynch makes a statement in the *Good City Form* about what a place of quality is:

"A good place is one which, in some way appropriate to the person and her culture, makes her aware of her community, her past, the web of life, and the universe of time and space in which those are contained […] sensible, identifiable places are convenient pegs on which to hang personal memories, feelings, and values. Place identity is closely linked to personal identity. "I am here" supports "I am". Intense familiarity will create a sense of place" (1981 p.132 &142).

In a relative manner Healey argues that understanding the quality of places refers to the internalisation of structure and agency (refer to Giddens 1984), "moving beyond just the actors, and incorporating the networks of social relations within which systems of meanings and ways of acting are constituted" (1999). Places have been defined also in contrast with their counterpart such as places and non-places (Webber 1964, Augé 1995), locales and counterlocales (Lofland 1998), space of places and space of flows (Castells 2005). Besides the place that refers to confined localities with a geographic context, there is what Castells calls "the places of the space of flows" (p.54), an intermediate category of urban nodes that together with the users' networked spatial mobility satisfy the connectivity of localities with the space of flows. To a certain extent we could transfer these interpretations of place to the *e-places*. So, what makes *e-places* identifiable as "good places"? We propose to explore that through Lynch's taxonomy of images.

5 KEVIN LYNCH'S TAXONOMY OF IMAGES

At present, there is a shift in the conception of virtual space from the "one-to-many" to "many-to-many" (Shirky 2008) that is related to the software design. Our interest in places on the net (e-places) is related to this shift in design, as we would like to search for means to improve social software toward promoting place-based communities in the physical space. For that, we try to find out how users perceive and define virtual space, by using methods of the design practice in physical places. In 1960 Kevin Lynch proposed a method to evaluate the "imageability" of cities, in order to support designers in conceiving urban images that are identifiable, memorable, and that invite for future exploration.

Lynch claims, "there seems to be a public image of any given city which is the overlap of many individual images. Or perhaps there is a series of public images, each held by some significant number of citizens. Such group images are necessary if an individual is to operate successfully within his environment and to cooperate with his fellows. […] Each individual picture is unique, with some content that is rarely or never communicated, yet it approximates the public image, which, in different environments, is more or less compelling, more or less embracing" (1960, p. 46).

By aggregating individual accounts, Lynch's method reveals that there are elements in the built environment that are important for the collective perception of the city. So next, from such individual images of a hybrid (on-line) community that members could configure, we aim to understand what software components could determine the quality of virtual space, when certain spaces are invested with meaning and become e-places, and eventually how to bridge the online activity with physical places (and vice-versa).

To elicit information from residents about the legibility of their places, Lynch asked them to draw sketches of cognitive maps depicting imaginary journeys, which are mental representations of the city. The purpose of the maps' inquiry was to breaking the ice, and stimulating community members to engage in the process of designing their future neighbourhood. Besides that, urban designers could also identify elements that contribute to shaping a legible and memorable built structure, and the main elements are: landmarks, nodes, paths, edges and districts.

Lynch defined these elements as following (1960). *Landmarks* are "the point-references that are external to the observer. They involve singling out of one element from a host of possibilities, and their principal characteristics are singularity, being unique or memorable in the context (many times in contrast with it)" (p.78). *Nodes* are "the strategic spots into which the observer can enter, intensive foci, typically either junctions of paths, moments of shift from one structure to another, or concentrations of some characteristic (they may in reality be large squares, or somewhat extended linear shapes, or even entire central districts)"

(p.72). *Paths* are "the predominant city elements, the channels along which the observer customarily, occasionally or potentially moves" (p. 49). *Edges* are "the linear elements not considered as paths: they are usually but not quite always, the boundaries between two kinds of areas, linear breaks in continuity" (p. 62). *Districts* are "the relatively large city areas which the observer can mentally go inside of, and which have some common character (recognized internally)" (p.66). Next we propose some possible interpretations of these elements as social software components, which could produce identifiable and memorable journeys within the hybrid (on-line) communities.

As *e-places* we propose the homepages, due to representation and mainly through self-presentation and representation of user's identity one creates attachment, over time the space is appropriated, and invested with meaning. Whether these particular spaces are individual or community sites, they have private and public areas like public "profiles", private "home" (i.e. *Flickr*, *Facebook*) etc. Also *e-places* could be public spaces for on-line gathering such as spaces of interest or activity groups (gathering on-line forums, *wikis*), community homepages, and the like.

E-paths could be defined in the virtual space as the succession of clicks and links to get from one entity or activity to another. Entities have navigation possibilities (i.e. menus) like users' pages or other hyperlinks. We imagine the possibility to design paths in order to create a pre-determined or configurable way to experience a hybrid community. *E-nodes* could be considered the on-line interest groups and chat rooms. *E-landmarks* are some of the particularities of the interface (i.e. names, logos, mottos, colours, visuals), community outcomes that are presented publicly like events and tangible results in the physical space, or at a more personal level addresses and pages to which users create special attachments. *E-edges* are the boundaries between various communities, which are given by the constraints on access and uses. *E-districts* could be the different on-line communities. We illustrate these elements in Table 3.

Lynch's elements	Physical Space	Virtual Space	Spatial Relations
Landmarks	Monuments, domes, towers, trees, signs	Logos, names, labels, mottos, colours, visuals	Identifiable, singling out, unique/contrasting with the context
Nodes	Squares, intersections, exits, transport nodes, central districts	Chat rooms, interest groups, interactive websites	Space of gathering crowds, for social activities, time defined
Paths	Streets, promenades, system of public spaces	Menus, "encouraged" hierarchy in surfing the web	Space navigation, includes (determine) rhythms, temporalities
Edges	Walls, natural (water) features, motorways, rail tracks	Constraints on access, and membership (groups, networks)	Space separation, division, possible hierarchies
Districts	Areas of clusters with similar character	Collection (coalition) of interest groups, on-line communities	Space unification

Table 3: Lynch's taxonomy of images

On the Net, Lynch's taxonomy of images might be useful in identifying the characteristics of *e-places* as sets of visual attributes (i.e. interface, logos, labels, text, images). The method is not relevant for the social and temporal components that are so important in cyberspace. For that we would need to employ social theories of space like Whyte's *The Social Life of Small Urban Spaces* (1980), for instance. However, we suggest that examining the legibility through sketch maps of the virtual space could bring into the analysis basic information that refers to those software components through which users identify or represent e-places, and orientate their on-line journeys. More importantly, the method could work as a catalyst by "breaking the ice" to engage users in software design. In future social software design these identified components could become links to similar elements in the built environment (i.e. landmarks linking to e-landmarks etc).

6 CONCLUSION

In this paper we propose to expand the notion of place to the virtual space based on observations of members' activity in online communities. In some of these communities, the mode of expressing users' identity allows for the appropriation of space through (self)-representation, with the consequence of creating strong ties with the "place". By means of affective, emotional, and temporal connections with the virtual space, users' invest it with meaning and conceive it as place. Besides such phenomenological (*relational*) views of space, existing design of social software includes spatial representations that vary from 3D virtual worlds to flat environments meant only for users' exchange of content and information (*relative* space). The connection of online communities with the physical space diverges from almost lack of consideration to mapping of geographical space, representation of neighbourhood boundaries or reproduction of built up structures (*absolute* space). Moreover, according to the four constructs of place overviewed in the paper, in cyberspace *e-places* could be interpreted mainly as image, process and meaning, while product could be considered perhaps the information content of online communities.

We suggest that Kevin Lynch's taxonomy of images could be employed as a starting point to determine the "imageability" of cyberspace, although the method lacks the social and temporal components of the virtual *relational* space. Yet we expect that such analyses of users' sketch maps that reveal interesting spatial attributes like landmarks, nodes, paths, edges, and districts can contribute to defining "appropriated" online places, to which users attach meaning through memories and feelings of belonging. The potential advantage of this method is twofold. On the one hand, it could work as catalyst for members' participation in the design of hybrid community's social software and in future development of the neighbourhood, which could bridge the physical with the virtual space. By engaging the community members at the beginning of the process to draw sketch maps of cyberspace or of their online communities, they may become aware of the shortages of the status quo, and of the benefits of appropriate design of hybrid communities. On the other hand, the method could work as a stimulus for planners' participation in the design of virtual space as well, due to the similarities of the virtual and physical space, in between which the methods of practice could be borrowed.

7 ACKNOWLEDGMENTS

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