

## From Local Knowledge Mapping to a Learning Planning Process

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### Abstract

*Local knowledge and learning in an urban planning and design context can be examined as both informal and formal spatial information, which is created and shared in a local mapping forum. The problem is that these two types of information seldom can be merged and viewed together. I will start my study by defining the concept of local knowledge. Essential questions are as following: Can informal information produced by local actors be utilized alongside with formal institutionally produced information? Do new Internet technologies enable more effective ways for knowledge building and learning in a planning process?*

*I present the results of an experiment which was realized in a city quarter of Maunula in Helsinki, Finland, in 2003-2004. An Internet-based mapping application, My Maunula Map, was integrated into the city quarter's web site. Based on these experiments, a new community mapping application will be built in Espoo in cooperation with the residents' associations, researchers (OPUS project) and the municipality. Development Forum of Espoon keskus will be a local web site with diverse information providers.*

### Background

Urban planning is traditionally seen as rational, instrumental and technical (Sager 1999). In the present information age planning has also become a struggle for rationality and power, therefore "knowledge is power" (Flybjerg 1998). New participatory practices and technologies have challenged the old ways of producing, distributing, controlling and interpreting knowledge in a local context (McCall 2003). Urban planners and architects are no longer the only experts on the planning field, which has become more and more complex with multiple stakeholders, experts and media outside of the formal planning process (Staffans 2004). Can the residents be considered as experts of their own living environment, and if so, what are the means of promoting their expertise and knowledge in an urban planning process?

The residents often face demands for having comprehensive understanding of the "whole" planning situation – not just of matters based on their individual interests. It is hard to formulate a broad understanding of a planning case due to the fact that the residents often lack basic information. For example register and census data is usually not open for the public. Some of the spatial and other data storages have been opened up in the Internet, but the data flow is mostly one-way. Citizens can use geographical information systems (GIS) and view maps, but they usually can't put their own data into these systems. In order to gather knowledge from the citizen, participatory methods based on commentary maps have been developed. In participatory GIS (PGIS), people can add data into the system and put comments on a map, and then the results are studied and analyzed by experts. However, knowledge gathered from the citizen is often qualitative and "vague" in nature. How should a planner handle it? What would be the right place for this information?

I will approach the issues of *local knowledge mapping* and *learning urban planning process* with two case studies and by referrenging to the theories of identity and meaning of a place, knowledge building and learning. The focus of my study is in the use of the Internet as medium, tool and

learning environment. The case studies presented are dealing with interactive map applications as a virtual knowledge building environment.

### About local knowledge and identity of a place

In general, local knowledge is described something that is based on people's daily life experiences. The natural consequence of this is that local knowledge is attached to the physical places where people live, work and act. In his dissertation "Place and placelessness" Edward Relph pointed out, that places are meaningful, they have identities and meanings for the people who live there. "The identity of a place is an expression of the adaptation of assimilation, accommodation and the socialisation of knowledge to each other" (Relph 1976). Planning, on the other hand, is about shaping those places (Healey 1997). Planning has effect on people's every day life in many ways. In this respect, architects and urban planners as *place-makers* have great responsibility for shaping our environment. Planning theories after the second world war have been emphasizing functionality and objectivity. Professionals and experts were supposed to be able to consider between different options and then decide, what is the best solution for both the citizens and the society as whole (Taylor 1998). Yet, understanding of what is rational or desirable for a certain place is not always shared among other stakeholders.

According to Relph, the concept of a place means different things to different people depending on their personal relation to a place. Relph refers to "inauthentic attitudes to place", which don't involve understanding about a place or its symbolic meanings, identity and values. This attitude can be a result of professional traditions, aesthetic fashions or traditions of urban planning, which require "objective attitudes". Places are seen as situations and environments as places where buildings and activities are situated. Relph comes up with concepts of *insideness* and *outsideness* expressing one's relation to a place. In a situation of *incidental outsideness* places are merely backgrounds for actions. Politicians and decision makers often regard places that way. According to Relph, the most common attitude among professional planners is *objective outsideness*: a place is situations, geographical coordinates, figures, data. Meanings, values and identities don't fit into this concept. When a planner involves a bit more, attends meetings and cooperates with local people on a professional level, he or she experiences *behavioural insideness* as an objective observer. Planners who have deeper contacts with local people may become to feel *empathetic insideness*, which demands "willingness to be open to significances of a place, to feel it, to know and respect its symbols" (ibid.).

From the point of view of information technology, Relph's concept of *vicarious insideness* is interesting. It includes experience of the place which comes across from books and other media. Still, this indirect "contact" to a place may cause feelings of insideness. People can visit local web sites in order to get some "insider information" of the place without actually visiting the place. They acquaint themselves digitally with the place by browsing the photo galleries, reading the news and discussing forums. For example the Maunula web site promotes the positive identity of Maunula: its aim is to build a nice image of the place. It seems to work, since some incidental virtual visitors have commented: "I wish I lived in Maunula!"

Local informal knowledge is often valued in a planning process as common or indigenous knowledge, which is hard to specify and translate into formal or technical language. Local knowledge is easily considered as "opinion" above "knowledge" and thus dismissed. Before it can be taken seriously, it has to be stated in scientific terms (McCall 2003). On the other hand, formal knowledge which deals with geographical information and register data is usually quantitative and precise and thus considered as more accurate, more reliable and measurable than informal knowledge. The problem is that our planning system relies heavily on formal knowledge and expertise of the professionals.

## Learning and knowledge building in planning context

Applying the theory of social constructivism, local knowledge in planning context can be approached as a common learning process. Social constructivism emphasizes the meaning of the community and interaction in knowledge building processes. Reality is socially constructed in communication and interaction between people. Learning is cooperative by nature, and different kinds of expertises are shared between the members of a community (Manninen 2000). In residents' associations there are different kinds of people with diverse skills, experience and know-how, which can be harnessed for common goals. But does learning happen between the residents and the planners in a planning situation? Do people in these processes truly learn from each other? What does this require?

Although there has been a lot of discussion about the possibilities and advantages of communication and knowledge sharing in a planning process, the traditions of planning institutions and professions have changed slowly. Sari Puustinen has studied Finnish urban planners – mostly architects by profession – and their opinions and conceptions of participation in planning and if they feel the principles of communicative planning as a threat to their profession (Puustinen 2004). Planners seem to see themselves as professionals and defenders of general interest, which only they are able to interpret. Consequently planners do not see planning processes as discursive situations where the general interest would be defined in discussions between different interest groups and actors (ibid.). This is surely a challenge to any participatory method to be tested in urban planning, not only participatory GIS.

Similar kinds of results were found in Sweden, where Ann Skantze studied urban planning process on a pedagogical view, concentrating on studying the cooperation between professionals with different kinds of knowledge and competence (Skantze 2005). Skantze describes how professionals from different administrative sectors complained that it was “hard to get the right kind of knowledge or information, appropriate to fit into the way of thinking and the forms of the traditional planning process” (ibid.). According to them, others seemed to have an inadequate understanding of planning process. Social and spatial issues were not seen as connected to the process. Spatial planning and knowledge within the social sector were thus separated. Skantze points out, that if the contribution of others (than planners) is perceived as an other perspective, there is a chance for the participants to explore and elucidate different kinds of knowledge, which would open up for mutual reflection and understanding. But if it is expected that all professionals (or other stakeholders, for that matter) should have the appropriate information or knowledge ready and fit for the planning process, there is no need to penetrate or discuss the different aspects of the planning task and the joint interests. The information will be dismissed as “wrong kind of information” (ibid.). Thinking of the result of this study, a grim thought is emerged. If the professionals don't value even each other's knowledge, what is the position of local knowledge of an ordinary resident in this respect?

If the hypothesis is that learning can happen in urban planning process, what are the prerequisites? The stakeholders - planners, citizen activists, residents, developers - should learn from each other and in that way emerge a better mutual understanding. Learning can eventually lead into *networked expertise* (Hakkarainen & Lonka 2005). Expertise can be examined from the perspective of three learning metaphors: knowledge acquisition, participation, and knowledge creation. According to Hakkarainen and Lonka, they are all relevant in workplaces and educational institutions, as “learning is a by-product of participating in a social practice” (ibid.). Thereby learning is constituted in interaction between individuals, communities, and larger networks supported by cognitive

artifacts like digital devices and networks: it coevolves with continuously transforming innovative knowledge communities.

According to Scardamalia & Bereiter (2002), collaborative learning is not the same thing as knowledge building. Knowledge building recognizes the importance of creating *new* knowledge. Scardamalia and Bereiter have brought up that knowledge building results in the creation or modification of public knowledge – knowledge that lives in the world and is available to be worked on and used by other people. “The key distinction is between learning – the process through which the rapidly growing cultural capital of a society is distributed – and knowledge building – the deliberate effort to increase the cultural capital of society” (ibid.). From this perspective, the meaning of *local* knowledge building is to increase the cultural (and other) capital of the neighbourhood.

Knowledge building occurs when a community learns to assimilate their ideas into larger wholes (Scardamalia & Bereiter 2002). Naturally, it takes time before a community learns this and starts to act proactively and manifest its visions concerning its neighbourhood. Applying Relph’s concepts, people’s motivation to participate in planning issues emerges from their daily experiences in their living environment. A neighbourhood is important because it involves identities and meanings for the people who live in it. That is why so many people act only when they feel that their place is under threat or change. On the other hand the planners probably feel certain “objective outsidersness” in relation to the places they are planning. Their interest is mainly professional, and usually they build their knowledge in different social networks, separate from the local ones. It is interesting to see whether a local web site with mapping applications can function as a local knowledge building environment for the planners too. Can “vicarious insidersness” be experienced in an Internet-based knowledge building forum where “every individual contributes to a growing body of information” and where “shared knowledge leads to innovation and growth” (ibid.)?

## Case studies

The case studies in Maunula and Espoo deal with the use of the Internet as a tool for participation and knowledge building in urban planning processes. How do the local residents’ associations manage and utilize these new tools? Do they support local planning and development processes?

### *My Maunula Map*

The city quarter of Maunula in City of Helsinki with its 7500 inhabitants has been an interesting and well documented real life case study for years (Staffans, 2004). Even though there has been some academic involvement in Maunula, the motivation and capabilities of the local community and its active members have been vitally important for the projects and their results.

In 1999 the city quarter’s own web site was launched with the support of researchers, who worked as “technology stewards” for the residents (Wenger 2005). It took several years before the local web site established its status as an important local medium. Today about 50-60 % of the inhabitants visit their own web site more or less regularly. The residents find the Internet especially useful in building a better image of their neighbourhood and producing their own “counter information” on urban planning cases (e.g. case of the deteriorated Shopping Center) and other issues too.

My Maunula –map was integrated into the local web site and launched in 2003. It was designed by a research team from Helsinki University of Technology, Department of Architecture in cooperation with the residents’ associations and City Planning Department of Helsinki. The actual map was a combination of an ortho-photo image, contour lines, name labels of the most important streets and manually colored and emphasized buildings. It was encoded by hand, because no GIS

technology was available due to the limitations of time and money. Because of this, spatial data could not be transferred into the municipality's GIS environment.

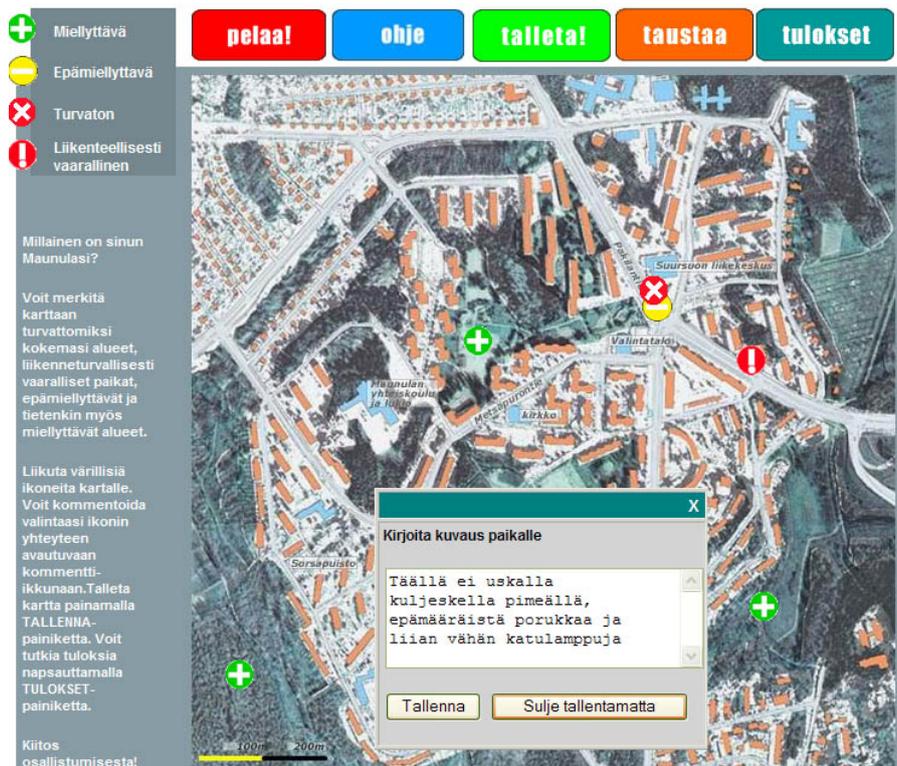


Figure 1. The user interface in My Maunula Map.

The map's simplicity was deliberate, and based on feedback, this "home-spun" interface was easy to use. The users could mark places with symbols: pleasant (green), unpleasant (yellow), unsafe (red with minus) and traffically dangerous (red with exclamation mark). A comment could be attached to each symbol. After the session the users were asked about their age group, gender and whether they lived in Maunula or not. Users can make simple thematic analyses of previous comments and in this way evaluate the results him/herself. The results can be analyzed and visualized by gender or age group, and lists of the comments in certain areas can be viewed. After getting experience of the feasibility of a local commentary map in local environment in general, more effort will be put on connectivity and articulation of different types of spatial data in the next stage.

Based on feedback of the users, the outcome of the experiment was that the residents were willing and capable of evaluating their living environment as a whole (not just "my back yard"). They expected to have feedback ("what happened to the data I produced?"). They appreciated the possibility to analyze the results and review the comments of others. But the most important thing was that this data produced by them would be of some importance.

After 18 months, there were 150 maps with 323 symbols in the data base, and in 59 % of these there was a comment included. The results show that pleasant places were dispersed and dotted around the map, but unpleasant and unsafe places clustered on certain areas – mostly around the shopping center area and some pathways with bad lightning (see figures 2 and 3). These results were similar to the study on people's perceived quality criteria in their living environment realized in City of Järvenpää. The study was applying a "SoftGIS-method", developed by Marketta Kyttä (Kyttä & Maijala 2005, Kyttä & Kahila 2006).



Figures 2 and 3. Unpleasant and unsafe places (left) and pleasant places (right) by all respondents.

### ***Development Forum of Espoon keskus***

The experiences from Maunula are being utilized in our ongoing research project, which is one of four case studies in OPUS project (see <http://opus.tkk.fi>). During the next two years we will deepen our understanding of Internet-based GIS and the concept of local knowledge in the context of urban planning,

Espoon keskus with its 35 000 inhabitants is one of five sub-centers of the City of Espoo. A huge number of local development activities is going on in the area: zoning, construction, analyses, projects conducted by the third and private sector etc. Information of these diverse activities is hard to find because it is dispersed. The aim of our study is to bring together informal local knowledge produced by the local stakeholders, and formal geographical and register data produced by municipalities and other information providers. The common platform for this data will be a local web site, maintained and controlled by a multi-actor body of local stakeholders. The work is still on progress, but the functional and technical definitions are settled.

When designing Internet-based tools for participatory planning purposes, one has to ask oneself three essential questions:

- what does an individual gain (“Why should I bother to put my effort in this?”)
- what does the community gain (“Is there going to be some real impact?”)
- what does the planning apparatus gain (“What are the benefits for the planning practice?”)

In the Development Forum of Espoo two open source platforms will be integrated. A content managing and publishing system (Joomla) will form the framework of the site. Mapping functions are realized with MapServer, which is not a full-featured GIS system but an environment for building spatially-enabled Internet applications. The combination of MapServer and Joomla will form a virtual environment with a strong focus on locality, easy-to-use user interface and openness. Residents’ associations, representatives of different departments of the city of Espoo, entrepreneurs and people from other local projects are invited to design the Development Forum. The focus of the site is on planning and development issues. The Forum will also contain functions like discussion forums, bulletin boards, calendars and photo galleries. Spatial information is linked to articles and discussion topics within the content management system. All coordinated data can be later

transferred into the municipality's GIS for more sophisticated analyses. Then, a "community layer" can be formed alongside with the so called formal data layers.

For the moment, there are two kinds of map applications under construction:

**Local Information Map** is the basic local data base, where all kinds of local data is put by many kinds of local administrators. New data can be added to the data base with an easy point-and-click system. If there is a lot of diverse information of a certain zoning case (official plans, resident's association's statements, news in electronic journals, picture galleries etc.), they are all linked to one point. There isn't always need to create actual content pages (articles) within the system itself but just to make links. As the user clicks on an active spot, the map shows the topics as a list on the right side of the site. So, the user sees more than "official" information concerning the place. He/she can then decide which links to follow further.

**Commentary Map** offers a platform for interactivity and local mapping. The model of My Maunula map is applied so that the users can put different kinds of coloured symbols with comments into a map. There will be three symbols: negative comments (red), positive comments (green) and ideas (blue). The Idea-symbol represents the potential proactivity of the residents. Age, gender and neighbourhood of the user is asked. The difference compared to My Maunula Map is that the comments can be examined also in different time layers, and the comments can be linked into messages on the discussion forum. So, if a comment or an idea emerges arguments, the discussion goes on in a public forum among other local topics.

There is already enthusiasm among the planners in Espoon keskus about the possibility to review this kind of "mental" spatial changes in a time axis. This kind of barometric map gives the user – resident, planner or investor – an interesting view into local development and progress (or recession). In a knowledge building process it is useful to be able to go back in history, see the previous mind-sets and discussions in the past. While the formal data often relies on the present situation in solving actual planning problems, locally produced on-line knowledge base could be a useful resource in forming understanding of the area as a whole.

One pilot case hardly changes the traditions of urban planning in the near future. The whole project should be regarded as a huge learning process, in which all stakeholders learn something new about the practices and effects of communication, interaction and knowledge building in a common virtual forum. This requires acknowledgement of facts like the limitations of resources and capabilities of different stakeholders. Fortunately in Espoon keskus the attitudes of the planners, GIS experts and other municipal authorities have been positive and proactive, which has encouraged the developers of the forum in their work.

At the moment OPUS project has the main responsibility for the forum, even though members of the residents' associations and other stakeholders are already involved. Who will be in charge of the Development Forum after OPUS project in 2008? The City is interested in supporting this kind of forum because there is need to improve the image of Espoon keskus and pull together diverse information. The city is willing to take part of the costs in the future – but not as the only sponsor. Local entrepreneurs and business may be interested in sponsoring the platform too. But to be realistic, this will take time and effort.

## **Towards sustainable solutions and practices**

The Internet is today seen as the central component of participatory GIS delivery (Weiner et al 2002). Still, mapping applications are often expensive to construct and maintain, special skills are needed to operate and control them, and training of the users is required. In this respect we need

examples of Internet-based participatory GIS which are cheaper to build and maintain and easier to use and administrate. Open source software prepares the way for new kinds of community mapping possibilities. Local GIS data can be produced on-line.

By far the impact of Internet-based participatory GIS on a true planning process is dependent on whether the planners are able and willing to use this kind of informal local information. Learning from each other requires cooperation, open dialogue and willingness to accept information from the others. If some planners still see participation in general as “extra nuisance”, there is no point to expect that the implementation of an mapping application or any other participatory method is really going to succeed. We will still ask who has the “right” knowledge.

As long as we live from one project to another, there will not be sustainable examples of local participative projects integrated into a planning process. Continuity is required, but brief project implementations often stay unattached into the local daily processes of the area. Projects should be integrated into a broader community development. Instead of producing more government or municipality driven projects we need examples of not only multidisciplinary but also cross-sector partnership and multi-actor practices where knowledge production is not “owned” by the authorities but is shared between all the knowledge producers. Therefore local mapping should be community driven in order to support the local networks in their knowledge building processes. However, Internet-based mapping applications controlled by residents themselves are still rare. The problems are not technical but organizational and “human”. Creating local multi-actor maintenance teams requires organizational skills and cross-sector relationships. As Etienne Wenger points out, a community can build its own capacity and create new practices through learning (Wenger 2005). Then local knowledge may start to cumulate and evolve, especially when the planners take part in discussion and information producing as well. A learning process can take place.

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