

Campiello – New user interface approaches for community networks

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1) Introduction

Existing community networks have a broad agenda of using technology to foster social objectives of community cohesion, enhanced education and strong democracy. They are intended to advance social goals such as building community awareness, encouraging involvement in local decision making, or developing economic opportunities in disadvantaged communities [Schuler94].

Given these objectives, the availability and modality of access can be considered a major issue, because only a broad participation to the community network activities can sustain their growth and wealth. However the experience so far demonstrate that the common user base is mainly composed by computer literate, accessing the network because they already have a PC at home or at the workplace. In fact from the technology point of view community networks are based on large bulletin boards and the main user interface is usually PC-based (proprietary application), a Web browser.

In this paper we briefly present some ideas from the EU funded project Campiello¹. The main point in the Campiello approach is, that the community network access will be broadly extended into the real places through new interface metaphors (*paper, large screen displays*) and not only be accessible from Home PCs. This greater penetration and connection with real life should support a user base truly representative of the community and possibly open the community to more interactions with external members.

2) The Campiello project

¹ Campiello (Esprit Long Term Research Project 25572) started in September 1997 and will last until August 2000.

Campiello is dealing with connected communities in towns, which have a rich culture and hence large numbers of tourists. The major objective of the project is to better connect the members of the communities (local inhabitants; past, present and future tourists; organizers of cultural events = cultural managers). Sub-goals are to make the local inhabitants active participants in the construction of the cultural information, and to support new and improved connections of local inhabitants with cultural managers and tourists. This is achieved by creating a bi-directional exchange of information about the town, its places and events. Local people are given the means to access and create the available information in a ubiquitous manner: paper, mobile devices and large (public) screens.

So the aim is not only to build a network for empowering an existing community, but to build a network that tries to bring different communities together (tourists and locals) or at least to let them profit from each other.

The functionality of Campiello

On the basic level, the Campiello system acts as a repository of information that is related to places and events in the city. This information mainly consists of descriptions and comments. Every user of the system can contribute to the information space, but there will be some main actors that provide an initial set of descriptions and continue to feed the system with descriptive information

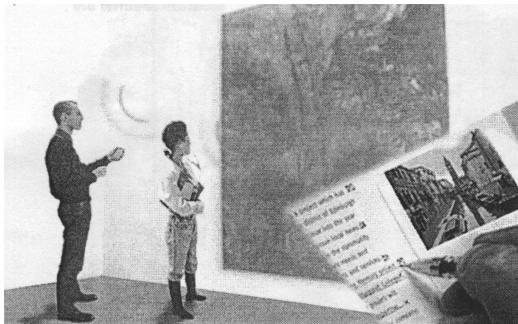
The system collects explicit and implicit feedback of the user and combines this with a given profile of interests to select information items that might be interesting for the user. This works in a pro-active way (i.e. without action by the user) and in a reactive way (i.e. the user tells the system to give him items that match some attributes). More information about the idea of collaborative filtering or recommendation can be found in [Shardanand95], KnowledgePump, an

existing system from Xerox is described in [Glance98].

For accessing the information space and the collaborative features we will not only use Web- or PC-based user interfaces, but try to integrate the user interface with the physical places themselves. The idea is to support ubiquitous computing and to provide the possibility to meet people face-to-face at the places themselves. Two of the user interfaces we have in mind for this will be described into more detail in the following chapters.

3) Paper User Interface

A novel feature of Campiello is that it provides ubiquitous access to information by the use of paper based interfaces. Using Dataglyph™ technology machine-readable information is stored on paper together with human-readable information (see also [Johnson93]). This means that a printed information sheet can provide fields allowing users to request more information or add comments and can later be scanned for processing.



Picture 1: Usage of ActiveNewscards in a museum

The main paper item allowing users to enter comments and to request personalized information are the ActiveNewscards. These are pages that contain data from the information space (i.e. parts of the descriptions and comments) and possibilities to express a request for more information or to give feedback.

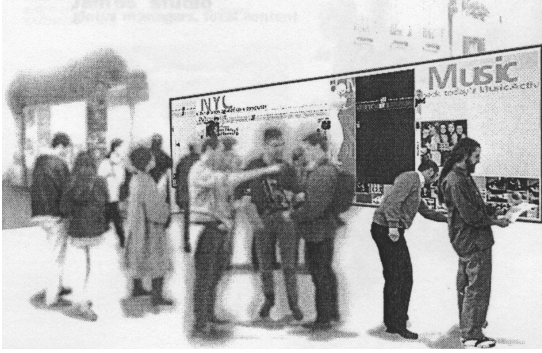
One type of ActiveNewscards is edited by cultural managers, pre-printed in large numbers, and distributed at several places in the cities. Information cards like this (without the possibility to express feedback) are already available in several cities today. The content of the forms might but does not have to be connected to the place where they are available.

Users are free to take these cards, just read the information or also give some feedback and comments and return them at a Campiello service point (a physical place which provides scanning (and printing) equipment). The card can be returned anonymously or be equipped with a personal id that connects the data and the request to a person. In addition to just providing their comments to the system the users can request further information or add information to their personal spaces by returning an ActiveNewscard. Instead of returning the ActiveNewscards at a service point, the users also can fax the pages to a Campiello server. They might also be collected somehow and processed in batch.

The second type of ActiveNewscards are those printed as result of processing an annotated card. They are constructed from information items explicitly selected for the requesting user, taking into account the feedback from the input card and all other information stored in the user and community profiles (using collaborative filtering techniques). In addition to the personalized information selection these types of cards can once again contain means for expressing further feedback.

4) Large Screen User Interface - CommunityWall

Interactive (large) screens are supporting the social interaction in the physical space of the towns. The displays are a means to create a social place around Campiello functionality, where to input new content, browse news and print personalized newspapers. At a CommunityWall people can post their paper forms and they can view together the newest input to the system and thereby meet other people. Since comments entered by users are displayed immediately the users get immediate feedback on their input and the knowledge that their views can be seen by others. This provides another incentive to contribute to the system.



Picture 2: A vision of the CommunityWall user interface

The CommunityWall is a large screen display, which enables groups of people to browse comments submitted to the Campiello system. Along the top of the CommunityWall are a series of subject headings. The space under each heading contains comments relevant to that heading. However the CommunityWall display is not static, it is dynamic in two ways. As comments age, they drift off the screen and new comments are added as they are created. This ensures that the comments on display are always recent and timely, unlike the comments that may be returned as the result of a search or recommendation by the other interfaces.

Another aspect of dynamicity which we investigate is that the CommunityWall could adapt its display to user interest. If a number of users cluster around a particular subject area, then that area is given more space on the display and less popular subjects are given a smaller amount of screen space.

5) Summary

Campiello is based on the classical ideas of community networks, to empower a community by giving them means for communication and for making their communication persistent and visible for other members of the community. Based on this general idea we try to investigate two approaches. Firstly, we try to replace the classical browsing approach to access the information with a personalized recommendation approach. Secondly, we enlarge the user interface space from PC-only user interface to interfaces that focus on bringing the system to the places people are (Paper UI) and to create a place where the people can/will meet each other (CommunityWall).

Acknowledgements

The work described in this paper is supported by the EC within the Campiello project (ESPRIT LTR #25572). The ideas for the new user interfaces have been developed together with Domus Academy Research Center in Milano. The authors would also like to thank all other project participants for their contributions and the fruitful discussions on topics.

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