Locating computer clubs in multicultural neighborhoods: How collaborative project work fosters integration processes

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Abstract

Located in socially and culturally diverse neighborhoods, we have built a network of intercultural computer clubs, called come_IN. These clubs offer a place to share practices among children and adults of diverse ethnical backgrounds. We show how this initiative ties into the striving for the integration of migrant communities and host society in Germany. In this paper, we analyze how collaborative project work and the use of mobile media and technologies contribute to integration processes in multicultural neighborhoods. Qualitative data gathered from interviews with club participants, participative observation in the computer clubs, as well as the analysis of artifacts created during project work provides the background needed to match local needs and peculiarities with (mobile) technologies. Based on these findings we present two approaches to add to the technological infrastructure: (1) a mesh-network extending the clubs into the neighborhood and (2) a project management tool, which supports projects and stimulates the sharing of ideas among projects.

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1. Introduction

"Integration findet vor Ort statt" – “integration takes place locally” – has become a well known phrase in the German debate on and striving for an integration of migrant communities and societal majority. Political as well as scientific discourse has come to the conclusion: it is the local, neighborhood setting that serves as starting point for sustainable integration processes – the most basic level where conditions of joint intercultural life are discussed, negotiated, and agreed upon.

By offering a place for shared practice among children and adults, the intercultural computer clubs following the come_IN approach contribute to these local developments. Situated in primary schools in socially and culturally diverse neighborhoods, the clubs bring together people of different backgrounds and age. Once a week they voluntarily gather in the computer club, work on joint projects, or realize individual ideas at the computer, study and play. These situated and shared practices are apt to develop an effect on an individual as well as on a community level (Stevens et al., 2005; Veith et al., 2009): via computer-based project work the club participants can establish new social contacts, learn about the ideas of children and of adults, respectively – within their own and from different cultures. Thus, they can actively develop a new understanding of the neighborhood and their own share in it – an understanding that may be seen as a crucial step towards integration.

Seeking out the relation of localization and place, (computer) technology use, and integration processes, we structure our analysis and argument as follows. We first give an overview on the discourse on and strive for integration of migrant communities and societal majority in Germany. Then we describe the line of research on mobile communications technology, its use, and influence
on awareness for localization and place. We then describe the concept and development of intercultural computer clubs *come_IN* in Germany. The subsequent analysis of project work in the computer clubs is subdivided: we first give a detailed description and analysis of two exemplary computer club projects. Following and motivated by this study of two project works from the clubs, we show in the in-depth description and discussion of two technological interventions, how each of them is apt and intended to support the club participants’ meaningful and persisting shared interactions and work. This discussion of social interaction and local neighborhood peculiarities is then closely linked to the description and analysis of two technological interventions from two computer clubs. This close combination finally points to the chances and limitations of collaborative project work in *come_IN* with regard to integration processes.

2. Related work

The *come_IN* approach roots in and contributes to two different fields of research – separate, yet related by their spatiality. We are laying them out in sequence here, thus bringing out the gap that *come_IN* is answering to.

2.1. Integration discourse and initiatives

Awareness for the significance of localization and place has become one of the two major lines of discussion in the political and scientific discourse on integration in Germany; under the headword of “Parallelgesellschaften”, “parallel societies”, the German public discussed about neighborhoods in large cities where migrant communities live with few or no contact to society’s majority (Esser, 1996; Unbehaun et al., 1997; Bommes and Krüger-Potratz, 2008). Some see these neighborhoods as a proof for decades of failed societal integration policy, and others do approve them to some extent as a place to preserve cultural traditions and language, thus serving as a bridge between cultures.

Spatial is the second line of the integration discourse as well – in a way that it is concerned with matters of equal access to all parts of societal life, such as justice, governmental institutions, education, labor, standard of living, and social security. Under the headword of the “digital divide”, the unequal access of migrant communities and mainstream society to computer infrastructure has made up for a considerable amount of this discourse (e.g. Wagner et al., 2002; Hinkelbein, 2004).

These two lines of the debate hint to the underlying understanding of integration. Integration, so it appears in scientific discourse (Berry, 1984, 1992; Schuck and Münz, 1998), has a structural dimension that is – matter-of-factly – concerned with equal access to all parts of societal life. Secondly, it has a cultural dimension, dealing with a common basis for living. The elements of this basis, such as common language, core values, common rules, and mutual respect for and knowledge of social and cultural differences, are often discussed with great emotion.

Intercultural computer clubs *come_IN* contribute to the German strive for the integration of migrant communities and societal majority. They serve to establish and strengthen social relationships in the intercultural neighborhoods by enabling and supporting collaborative practices among the young and adult members of the neighborhoods’ mainstream and migrant societal groups. Also, the computer clubs contribute to the bridging of the “digital divide” by providing open access to modern information and computer technology. With this approach, the US concept and tradition of computer clubhouses (Resnick and Rusk, 1996; Rusk et al., 2009) has been developed further, addressing the integration of migrant communities as well as issues of inter-generational learning in culturally diverse contexts. Following principles of situated, collaborative learning, and constructionist thinking, these US computer clubhouses have opened up many new opportunities for disadvantaged inner city youth (Michalchik et al., 2008) in the US and around the world. Their structure and success is well documented in research (e.g. Kafai et al., 2009). Where the US approach has a strong focus on the strengthening of individual skills and thus opportunities, the *come_IN* concept concentrates on community dynamics and the strengthening of social ties – on the local family, school, and neighborhood level.

2.2. Technology mediated interactions

Creating the setting for meaningful and persisting shared interactions among local neighborhood residents by means of (mobile) technology use, the *come_IN* computer clubs contribute to a line of research focusing on technology mediated interactions (e.g. Gurstein, 2000; Huysman and Wulf, 2004; Norris, 2003; Steinmueller, 2004). Here, social collaboration of individuals by means of communication devices make up for one focus of scientific attention (e.g. Foth et al., 2006; Gaver, 1992; Hook et al., 2003; Mynatt et al., 1997; Naukkarinen et al., 2009; Paulos and Goodman, 2004; Syrjänen and Kuuti, 2004). What are the necessary pre-requisites that enable and support these shared activities and interactions? Other researchers concentrate on the technologies themselves, asking how these influence and cause forms of behavior, such as patterns of mobile phone use or the interrelation of virtual teamwork and real-world collaboration (e.g. Chapman, 2004; Qiu et al., 2009; Rheingold, 2002), or looking at the development of new (locative) media applications and projects (e.g. Harle and Hopper, 2005; Lovlie, 2009). The latter approach and look into types of interactions via realization.

Yet another focus of research lies on the development of mesh-networks. Due its recentness most of the research is focusing on the technical aspects of establishing wireless community networks (e.g. Flickenger, 2003; Aichele, 2007; Hossain et al., 2008). Most of the “notes from the field” came from the USA or the developing world (Gurstein,
Social aspects like effects and opportunities related to the use of wireless mesh-networks are in the second place and mostly much less considered (e.g. Flickenger et al., 2007). Another field of research regards typical issues within a wireless mesh-network like fair use and sharing bandwidth, mostly more technic- and less user-centered (e.g. Wu et al., 2006 or Martignon et al., 2009).

Fundamental to both of these scientific foci is their spatiality: human perception of everyday life and of interaction with others is essentially influenced by the surrounding space and place. One does behave differently, depending on where one is, and who is company in this respective place. The use of (mobile) technology is apt to shift and broaden perspectives here, e.g. by overcoming physical limitations and boundaries. At this point, the come_IN approach links the insight that integration processes may best be supported by the strengthening of social ties on the very basic local family, school, and neighborhood level to the scientific expertise how these local interactions may best be fostered and mediated by (mobile) technology.

3. Come_IN computer clubs

Primary schools are purposely chosen to give home to the come_IN computer clubs: in intercultural neighborhoods they are the place to inevitably meet for people of different backgrounds (e.g. economical, educational, and migration). A basic rule for the computer clubs’ weekly two-hour meetings is that children should participate together with a parent. This rule was changed after a while – children, who could not join the club together with a parent (because parents had to work during club time), were encouraged to join come_IN together with another adult family member or friend. Project work in the club is conjointly decided upon.

The first come_IN club exists in Bonn Nordstadt since March 2004. Guided by school teachers and students from the come_IN team who work as tutors in the club, brochures about the neighborhood have been created; shared experiences like a travel to Berlin or a soccer match with a neighboring Turkish soccer club resulted in photo- and video-projects, animations, and games designed with the help of MIT’s visual programming software Scratch (e.g. Maloney et al., 2004).

In Siegen Wollersberg, the transferability of the concept was tested in 2006 with the establishment of a second come_IN computer club. There, the experience from Bonn has been used to refine (a) social and (b) technical aspects of the concept by (a) establishing an opening and a final short discussion round, where all club members gather and talk about current and prospective activities, and (b) allow a more flexible way of playing and working by retrofitting the club-equipment of stationary PCs with mobile laptops, and at the same time structuring the clubs file repository with personalized logins.

Four new clubs have been founded in summer 2009: (a) a school complex in Bonn–Tannenbusch with primary school, secondary modern school, and grammar school on one site brings together children, teenager, and their respective parents in two clubs, (b) a neighborhood initiative in the Nordstadt of Dortmund established a club in a primary school, and (c) senior citizens in Kreuztal adapted the come_IN concept for their idea of a computer-project with teenagers in a youth center.

4. Methods of research

Principles of participatory action research (Kemmis and McTaggart, 1988) guide the accompanying come_IN research project: information on collaboration and interaction, appropriating to media and computer technology, learning and social integration is gathered from narrative interviews, group discussions, audio and video material. This qualitative social research is combined with active or observing participation in the clubs.

This paper’s description and analysis of collaborative project work in the clubs builds up on data gathered from field notes that have been taken by tutors during the weekly club sessions, interviews with club participants, photo and video material. The interview data provided here is part of a set of data where we aimed at issues of integration, asking for (a) the motivation to participate, duration of participation, previous IT knowledge and experience, learning experiences in the club on the structural level, and (b) cultural/migration backgrounds, the community experience, friendships, and favorite projects on the cultural level. Our coding of the interviews (Lofland and Lofland, 1995; Strauss and Corbin, 2004) was guided by the two dimensions that have been shaped in scientific discourse on integration – the structural and the cultural level (e.g. Berry, 1984, 1992; Schuck and Münz, 1998). An overview on the respective empirical material used is given in each of the two presented studies of project work and technological interventions in the clubs.

5. Collaborative project work in come_IN

Project work in come_IN is closely linked to the various neighborhoods. Within these manageable local limits, the respective needs and peculiarities most immediately become visible and can be met and dealt with by an openly structured initiative like come_IN. Our in-depth description and analysis of two computer club projects from Bonn Nordstadt and Dortmund Nordstadt exemplarily illustrate this. Primarily contributing to the cultural dimension of integration is a project of “neighborhood-stories” from Bonn, triggering the exchange of different opinions and perspectives on supposedly known neighborhood places among young and adult club participants by joint exploration of these in photographs and writing. Meeting mainly the structural part of integration needs in the intercultural neighborhood is a “computer puzzle” project from
Dortmund, where women in the club chose a very palpable approach towards the computer, exploring its various components with screwdriver and soldering iron, and finally putting together two computers that accessibly remained as “theirs” in the computer club.

5.1. Neighborhood-stories

The idea to the “neighborhood-stories” in Bonn Nordstadt roots in the observation that the club members’ joint exploration of places in the neighborhood, followed by the processing of these experiences by means of the computer in the club, is apt to mobilize learning capacities that otherwise remained frequently unused. In the intercultural neighborhood, where 27.8% of the population does have a migration background (compared to the city of Bonn with 22.4% migrant population), the largest share of which is of Turkish descent. In teams, children, and parents in the computer club decided on places and topics they jointly wanted to explore in their neighborhood: places of like and of dislike, special people, or the histories of their houses. They captured their neighborhood impressions in photographs and writing. Back in the computer club these images and texts were then assembled to little brochures. And in the end, computer club participants did not keep their impressions and neighborhood perspectives to themselves but proudly introduced them into the neighborhood by selling their “neighborhood-stories” for a little money during school events or in places like local book stores.

Our discussion of the impact of the “neighborhood-stories” project is based on qualitative data that we gathered from six semi-structured interviews with club participants from Bonn Nordstadt, as well as from the project artifacts themselves – the “neighborhood-stories”. An overview on the number of children and adults participating in the creation of four issues of these little magazines reveals an average of 30 participants for each of the issues of “neighborhood-stories”. With regard to cultural background the participation in the “neighborhood-stories” is mirroring the general neighborhood structure, Turkish and German children making up for the largest share of the project participants.

The four discussed magazine issues contain:

- polls (2),
- interviews with neighborhood inhabitants (9),
- stories on neighborhood life and history (11),
- fictional stories (12),
- histories on places and houses (21),
- club project reports (45)

What most stands out here is the observation that the actors’ mobility outside the club’s room has a considerable share in the story-related collaborative learning processes. Children and adults jointly decided on places they wanted to explore, wrote about special events in neighborhood life such as a Turkish wedding, interviewed special people like the vendor in a local kiosk, or reported on club-related neighborhood events like the soccer tournament with a neighboring Turkish soccer club.

The mobility aspect was also emphasized in the interviews by the club participants themselves. A girl from the club phrases it like this: “We went out into the neighborhood to explore places, and then we came back to the computer to put down what we saw with our own pictures and writing. This was fun.” A teacher emphasizes the educational aspect in this undertaking: “For me, there was an educational aspect to it, to improve especially the migrant children’s reading and writing skills [...]. When they came to the club they wrote their little texts, or maybe only underlines to pictures they had taken.” And a father as well as the teacher then describes how this collaborative processing of neighborhood experiences by means of the computer puts computer club members of different age and culture in an equal position as learners: “All of a sudden, we had this dialog [...]” One artifact example for this dialog is a story that a little Muslim girl wrote about her personal “place of dislike” in the neighborhood. It was a gallery’s shop with various pieces of abstract art being scratched on the shop window – among those an abstract painting of a naked female body, which the little girl experienced as undue on her daily walk to school. Not only did her story trigger dialog about what’s appropriate among members in the club, it also led to a talk and exchange of opinions with the owner of the gallery. The owner, being informed by one of the school teachers tutoring the computer club, expressed her considerable surprise about such a perception of her show window. However, she declined removing the painting from her show window by referring to the freedom of artistic expression. While in this case intercultural dialog did not lead to easy consensus, the various members of the neighborhood became aware of the diversity of its values and their implications for daily life.

We see the learning processes encompassed by the project to be three-dimensional. They cover (1) the technical aspect of mastering different (mobile) media, such as photo cameras and the computer with its writing and image editing software, (2) the educational aspect of mastering common language reading and writing skills, and (3) the social aspect of becoming acquainted with different views and opinions on supposedly common things in the neighborhood.

5.2. Computer puzzle

In Dortmund Nordstadt, the computer club came to life in summer 2009 in a neighborhood that does stand out in the city not only because of its high population density, large number of families, and comparatively young age structure, but also because of its rich diversity of nationalities, cultures, and religions (57.7% of the neighborhood population does have a migration background), high unemployment rate, low incomes, and difficult access to
higher education. Neighborhood inhabitants were not reluctant to voice their interests and needs when the idea to the computer club was first introduced in local discussion rounds and neighborhood initiatives. Computer literacy was seen as important pre-requisite for access to various parts of public life and the proposed computer club expected to provide good help with regard to that matter. Thus, the club decided to take a very palpable approach to the computer, exploring its constituent parts with screwdriver, pliers, and soldering iron as one of its first activities.

Development and progress of this project have been documented in its 20 club sessions that took place over the course of six months in weekly field notes, video material of two club sessions, and photo material. This data constitutes the basis for this analysis. First, a quantitative look at the field note data reveals: participation in the “computer puzzle” project is constant – and it has a migration background and is mostly female. On average five women took part in the project, four of which have a migration background, coming from Turkey, Macedonia and India – a quota that mirrors the neighborhood diversity.

It is the women in the club who show greatest interest in the project (Fig. 1). One of them explains, why: “At home that is a man’s thing.” Another woman adds: “I can do many things – but not computer. We do have a computer at home. But I have three boys – so how can I ever use it?” Two fathers show interest in the computer club over the course of the project, each of them joining one club session – and neither one committing himself to further participation after observing the women’s engaged “computer puzzle” work. One of them explains: “Uhm, maybe this is better for my wife to come here next week.” With great curiosity and respect, the women in the club approach the technology, completely taking each computer apart and taking a detailed look at its various components. From the accompanying tutor they seek answers and advice to basic questions: What is main storage – and why does a computer need it? How does a computer “think”? What is the difference between various operating systems? What programs does it really need? Why does “stand-by” not equal “turned-off”?

At first glance this very detailed approach may seem disproportionate in a setting where no computer experts are being educated but basic computer literacy for everyday use is demanded. The qualitative look at the field notes taken over the course of the project reveals: it is this in-depth quality of the “computer puzzle” project that accounts for its persistency. This does not mean that every one of the women was able to explain and handle every single aspect explained independently, once the “computer puzzle” had been completed: By taking down the computer to its very bits and pieces, the women – most of whom did not have (regular) access to computers before (“At home that is a man’s thing.”) – lost their respect for the technology, simultaneously gaining confidence in exploring, trying, and erring things independently. Where at first they voiced hesitation before approaching a task (“Are you sure, I can do this? Won’t I break it?”), they confidently ventured to achieve things on their own (“Let’s go, we can handle this. After all we managed to put this entire computer together before!”). When the “computer puzzle” project was finished, the two computers remained as the “adult computers” in the club, not being used by the children during club sessions but reserved and used for undertakings of the adult club participants.

5.3. Discussion I

A comparative look at the two exemplarily discussed computer club projects points to one important aspect in the effort for the fostering of meaningful and persisting
shared interactions in the intercultural neighborhood. Both projects strongly indicate that for peoples’ joint appropriation of the socially and culturally diverse neighborhood it is important to consider both, structural matters of access to technology and social matters of negotiating different perspectives, sharing opinions and finding a common basis. While the former can be identified as the main aspect of the “computer puzzle” project of the women in Dortmund, the latter is in the focus of the “neighborhood-stories” in Bonn, where the little brochures turned out to be starting point for dialogue and exchange of perspectives among the various members of the neighborhood. The social structure of the computer club with its joint discussion rounds where help is provided and different perspectives are being negotiated provides the setting needed in order to transform free and open access to technology into a persisting and (locally) meaningful use of (computer) technology.

6. (Mobile) technology for local neighborhood communities

This insight motivates the come_IN approach not to take (computer) technology as the starting point of inquiry but to approach and further develop it from and for its respective appliance in people’s local daily practices. The following two undertakings may serve as an example for this. There is, (1) the establishment of a neighborhood-based mesh-network in Siegen Wellersberg, intended to support the closer linking of club activity and neighborhood life, and (2) the creation of a project management tool for the clubs’ work, supporting the handling of large amounts of data as well as a sustainable sharing of the expertise gained over the course of one project’s work for later times.

6.1. Extending the club: a neighborhood-based mesh-network

The success of the collaborative approach during the creation of the “neighborhood-stories” using different (mobile) media becomes one of the reasons for the undertaking of establishing a neighborhood-based mesh-network. A wireless network should increase the mobile usage of devices like cameras, recorders or laptop computers in general. For the second club founded in Siegen Wellersberg, this increased mobility and flexibility of the used hard- and software was very important right from the start in 2006. Due to the very limited spatial possibilities at the beginning, the club had to be as independent of a particular room in the school as possible. Even after the clubroom had been finished in 2008, this independence was advantageous. Laptops are used frequently – the club owns only three stationary computers that are more computationally efficient and are, therefore, used for relatively complicated and time-consuming activities, e.g. the production of videos. The computers are connected via a normal local area network, a fast wireless local area network (WLAN) is used for the wireless connection of the laptops. A server provides several basic services, an internet connection and the participants’ user accounts. Accounts and data of the participants are not only stored centrally, they are also mobile. Thus members are independent of the location of the school network, and can work from outside the school as well. When they get back to the club, the data is synchronized automatically.

In addition to the computers mobile devices like digital cameras are used for taking pictures and making recordings that are processed further in the club. By now, participants can use all the offered services and possibilities in the school and the surrounding area. Not only the laptops are connected, also first attempts have been made to transfer pictures wirelessly as well.

In order to further develop structures of technical and independency in the club, a mesh-network that is located in the surrounding neighborhood is being established at the moment (Schubert, 2009). Mesh-networks are organized in a decentralized way, and are therefore different from normal networks. Every participant is represented by a network node and contributes to the creation of a mesh-network, in which everybody takes part in the exchange of data. When a network node disappears, the other members can work without being disturbed noticeably. This is due to the automatic reorganization of the network and the routing of data via alternative ways (Dobusch and Forsterleitner, 2007; Gurstein, 2008).

With the active help of the club’s participants this mesh-network may connect the participants themselves as well as different clubs. It is planned to install mesh routers as first nodes of the network in the participants’ houses and apartments (Fig. 2). Club participants will be familiarized with the devices and thus will be able to take care of their maintenance by themselves after a while.

To optimize the reliability and coverage of the mesh-network, the installation of additional network nodes on roofs, poles, or other suitable places is being considered at the moment. It is meant to provide possibilities for direct and indirect communication as well as the exchange of project data. The use of a wireless mesh-network may be seen as a technical realization of the club’s social structure. Starting in the school, the network is meant to “grow into” the neighborhood and shall provide interested persons with the opportunity to gather information about the club and maybe even participate in it.

In a summary there are several reasons for a neighborhood-based mesh-network. It supports a closer connection between participants due to direct communication and easier data transfer. Participants can meet longer or more frequently for activities outside of the normal opening hours. The network better supports activities outside the club’s rooms, e.g. by the use of location-based services. It might be used as a contact and information platform. There’s an opportunity of active and direct participation of the members while constructing and increasing the
network. The “self-organization” of a wireless mesh-network can be used for its own growth and development; it offers a high availability and stability and is relatively cheap with regard to acquisition and maintenance and is independent of commercial providers. Last but not least the possibility of a cheap or even free broadband internet connection could be another important reason for the participation in the club, and could support the overcoming of the digital divide (more than 50% of the participants do not yet have a broadband internet connection at home).

6.2. Finding and sharing materials: Splatch2 – a project management tool

It was observed in several – especially larger – computer club projects that the artifacts created by the participants often remained incomplete and needed intensive tutoring during their process of creation. This was mainly found to be attributed to an overwhelming amount of data produced during the activities (e.g. photos, videos, and written stories) as well as a shared file access provided by the network operating system. Its complexity could not be handled by most of the participants, specifically by the elementary school children. In the end of a section, the children often stored raw materials and work-in-progress at places in the directory structure, which they could not find even in the next meeting a week later. Participants lacked an overview of the materials available they could use to process their experiences, and some of the skills needed to transform them to personally meaningful artifacts (Korn and Veith, 2009). Hence, a project management tool called Splatch2 is being developed, which supports the participants in their everyday project work and in multiple projects over time. The tool helps them on an individual level by displaying relevant artifacts in their current context (e.g. raw materials or previously created or incomplete artifacts) and also embedding them in the network of other related artifacts. It encourages re-use of own and the artifacts of others. On a collaborative level the tool visualizes expertise by highlighting the authors of or contributors to specific artifacts and recommends experts in specific fields to actually collaborate in the co-located club settings. In the long term Splatch2 is supposed to establish a pool of generated ideas and accumulated expertise from within the club.

During a pre-study three club sessions were recorded on video and interviews with younger club participants were conducted. Field notes and memorandums were also taken. All this material has been gathered, transcribed, and analyzed to spot first requirements and to develop a preliminary, non-functional prototype. Subsequently, this prototype is being further developed according to the empirical findings of a continuing evaluation in an evolutionary and participatory software development process. Screenshots are showing the user interface of the main window. In Fig. 3, area 1 shows the interface metaphor of FileUniverse: a club project is represented by a planet at the center of the screen, surrounded by files related to this specific project shown as satellites. Area 2 is a navigation bar, where the user can switch between different projects. The bar on the right hand side (area 3) is used to display different widgets, like the LoggedInUserWidget (4) or one for the creation of new artifacts (5). Awareness about other club participant’s activities may rise by another widget announcing their new created and related artifacts (6). This widget may trigger and support sharing of artifacts or joint work.

In the second screenshot (see Fig. 4) the planet FileUniverse is surrounded by even more satellites – these are
recommended artifacts from other projects with similar characteristics to the one in the middle. Each artifact in this orbit has a visiting card (1) containing meta-data about itself, shown also by a MetaDataWidget (2). As another example a VersionsBrowserWidget is also shown in the widget bar on the right (3). Both widgets are addressing the trouble of handling the overwhelming amount of data produced during club activities. Meta-data facilitate tasks like search or arrangement of artifacts, a version-browser allows an easier access and management of different versions of the same project.

In comparison to the currently most influential and commonly used desktop metaphor as graphical user interface for computers our tool relates to greater extend on spatial representations and metaphors. It is not only that a more adequate metaphor is being developed – Splatch2 implements the transition from single artifact construction kits towards complete environments for self-directed project management.

6.3. Discussion II

The two above described examples – the neighborhood-based mesh-network and the project management tool Splatch2 – are closely related to the specifics and needs as had previously been identified during project work in the clubs. Both technological interventions are being developed in order to support club participant’s local daily practice in the neighborhood. The use and support of the wireless mesh-network may be seen as a technical realization of the club’s social structure, where participants interact and engage in discussion and exchange of perspectives (in the club as well as in the surrounding neighborhood) as could be seen in the project example of the “neighborhood-stories”. Every club participant may use the mesh-network, and in doing so the mesh-net prospers, grows in range and thus becomes even more useful for all.

The project management tool Splatch2 does not only support the handling of digital artifacts created by the club’s participants. It also allows the re-use and sharing of artifacts and expertise at the same time, employing an underlying algorithm for search and cluster analysis instead of providing the user with special search functionalities or the like. Thus it can function as technical support for the individual appropriation of basic computer skills for everyday use – project work like the above discussed “computer puzzle” strongly indicate the importance not only of technology’s accessibility but of its embedding in a
social context providing the necessary confidence for its exploration and usage.

Concluding, it can be said that both above described and discussed undertakings show how structural matters of access to technology can be tackled and improved locally. Also, social matters of negotiation and interchange of perspectives and opinions in the intercultural neighborhood can be supported by the use of services or tools like a mesh-network or Splatch2. Because of Splatch2’s client-server architecture it could also be used via a network like the internet or the neighborhood-based mesh-network.

7. Conclusion

So, what does collaborative project work in come_IN computer clubs contribute to integration processes – and under which conditions does this happen? The closely linked look at local interactions and technology use indicates a twofold strength of the concept.

On the one hand, its open structure is apt to trigger collaborative activity in the intercultural neighborhood by addressing people of different backgrounds and age without reserve. It does not come along as a course where certain pre-requisites are needed for participation and a predefined set of topics are addressed, but promotes itself as a place for the joint exploration of the intercultural neighborhood space, as seen in the “neighborhood-stories” – and the acquirement of skills in (mobile) technology use and language skills as a consequence of this endeavor. Thus, the club may contribute to processes of exchange and negotiation of perspectives and opinions in the neighborhood. These activities may well be seen as important steps towards integration, because they contribute to its cultural dimension – the negotiation of the terms for a common basis for living.

On the other hand, the club’s free and open structure does not imply a lack of guidance – as seen in the “computer puzzle” project, where help and guidance is provided to the women when exploring the computer’s constituent parts. This guidance ensures the persistence of technology acquirement as well as social interactions by reducing inhibitions and reluctance among the young and adult club participants. Thus it can be seen as further confirmation of insights that the initiators of the US computer clubhouses have summed up under the title: “Access is not enough” (Resnick and Rusk, 1996). With this guided yet free and openly structured access to technology and to the acquirement of skills needed for its use, the come_IN concept serves to the structural dimension of integration, concerned with equal access to all parts of societal life – where access to (computer) technology sure has an important share in modern life.

And by extending and transferring the observed social negotiations of perspectives and matters of guidance to matters of technology development and design – as exemplarily seen and discussed above in the two technological interventions following from project work in the clubs, come_IN computer clubs are even apt to closely match local needs and peculiarities with technology. This is an important step to ensure its persisting and meaningful use, and thus a contribution to the bridging of what Hinkelbein (2004) and Wagner et al. (2002) have discussed as a “digital divide”.

Next steps in the creation of the mesh-network and the use of the project management tool Splatch2 will help to further strengthen and develop this come_IN approach that is in line with Naukkarinen et al. (2009). Instead of taking technologies as the starting point of inquiry and activity, come_IN computer clubs are focusing on distinct (neighborhood) communities and their location and media related practices. The current focus on the local neighborhood level in the German debate on and striving for the integration of migrant communities and societal majority (e.g. Bommes and Krüger-Potratz, 2008) proves this concept to be sensible. It applies and unfolds its effects on the most basic level of integration: the local neighborhood – home to those who shape and participate in the process.

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