

How the design of the OLPC XO-1 may support the social structure of an intercultural community

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ABSTRACT

In this text, we discuss how the technical features and design of the OLPC XO-1 may match with and support the interaction of children and adults in an intercultural computer club “come_IN”, located in a culturally and socially diverse neighborhood. Originally designed for the usage by children in developing countries around the world, the technical design of the so called “100 \$ Laptop” follows constructionist thinking, aiming to enable especially children to freely explore, experiment and express themselves. For discussion we put this design in perspective with ideas and expectations that children, parents and tutors voiced in ten narrative interviews about their experiences in the intercultural computer clubs “come_IN” to distill the possibilities a future usage of the OLPC XO-1 may offer there.

Categories and Subject Descriptors

H.5.3 [Group and Organization Interfaces]

General Terms

Design, Human Factors

Keywords

Computer Club, Intercultural, Neighborhood, OLPC

1. INTRODUCTION

Situated in primary schools, the intercultural computer clubs “come_IN” offer a place for shared (computer-) practice of children and adults. In culturally diverse neighborhoods this brings together people with different migration backgrounds: Once a week they voluntarily gather in the computer club, work on joint projects or realize their individual ideas at the computer, study and play. This shared practice is apt to develop an effect on an individual as well as on the community level: Via computer-based project work in the club its members can establish new social contacts, learn about the ideas and interests of children and

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.

In this context, the usage of OLPC XO-1, which was especially designed for children, may be apt to support the idea of the “come_IN” computer clubs. The first part of this text describes the “come_IN” project, giving a brief overview on the already existing clubs as well as on the ones in the course of formation, informing on work methods, social and technical structures. Then, results from qualitative interviews with children, parents and tutors about their experiences in the intercultural computer club are being discussed. A brief description of the technical structure and design of the OLPC XO-1 is given, followed by a discussion what these features may offer to the “come_IN” computer clubs.

2. COME_IN COMPUTER CLUBS

Several larger computer-based projects as well as numerous individual ones are part of the history of the first “come_IN” computerclub that was opened in Bonn in March 2004.

The multi-ethnic neighborhood has a large impact on the topics of projects and activities that children and parents choose in their weekly club-meetings [7,8,9]. Guided by school teachers and students from the “come_IN”-team who work as tutors in the club, small magazines 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 Scratch-, foto- and video-projects [6,10]. Basic rule for the two-hour club-meetings is that every child should participate together with a parent.

The transferability of the “come_IN” concept was tested with the establishment of a second “come_IN” computerclub in Siegen in 2006. There, the experiences from Bonn have 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 their current and prospective activities, and b) allow a more flexible way of playing and working in the club by retrofitting its equipment of stationary PCs with mobile laptops, and at the same time structuring the clubs file repository with personalized logins.

Four new clubs currently are in the process of foundation: a) a school complex in Bonn-Tannenbusch with primary school, secondary modern school and grammar school on one site wants to bring together children, teenager and their respective parents in

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two clubs; b) a neighborhood initiative in the Nordstadt of Dortmund establishes a club in a primary school; c) senior citizens in Kreuztal adapted the come_IN concept for their idea of a computer-project with teenagers in a youth center.

Principles of action research guide the accompanying “come_IN” research project at the University of Siegen. Its research assistants combine methods of qualitative social research with active or observing participation in the clubs. Information on processes of interaction, adaptation to computer technology and modern media, learning and social integration, is gathered from narrative interviews, group discussions, and the creation and evaluation of audio and video material.

3. COMPUTER USAGE IN COME_IN

What motivates/motivated you to participate in the club? was the starting point in the interviews. From the interviewee’s responses, four major aspects about computers can be distilled. They will be briefly discussed in the following.

3.1 Fascination and Awareness

“Today I would sometimes rather NOT use the computer in certain situations but instead make a phone call or the likes. The computer and I – we’re getting used to each other...” says one of the parents in the club in Bonn – and this statement encompasses the whole range of attraction and fascination on the one hand side and awareness of its powers on the other hand, that computers exert on children and parents. In the interviews club participation is strongly motivated by “appropriation” and “guidance”: The club is seen as a place promising room for the individual appropriation of computer skills and exploration of computer technology, as well as providing guidance for a well-balanced usage and the handling of its accompanying potential dangers.

3.2 Learning

Learning in the club appears to have two dimensions: 1) it is the process of mastering a tool that has become central in everyday life, education and work; 2) it is individual and playful exploration of possibilities.

“Ideally, I’d say it’s a functioning tool, enabling things which otherwise would not be possible”, a parent describes how the computer amplifies options. To a 9-year-old boy in the club, amplified options mean amplified fun: *“Naturally, when you discover something new, that’s really cool!”*

3.3 Joint work

Here, the third aspect of computer usage in come_IN comes into play: it is social; joint work is approved and in major projects decidedly aimed at. *“It’s about bringing people together – even if they’re not doing the same thing. They can work on the same project and still do something different – and have their own individual benefit from that. This is something that I’ve perceived as very positive”,* a parent recalls. Children seem to add a competitive part to this. To them, joint work also appears to be a chance to compare their own abilities and learning progress to others in the club – just like the boy, explaining a quiz-game he has created in Scratch: *“How I made this work is with different levels, you know – to do this is not all too easy!”* He, as well as another girl, also explains how he likes to play browser-games on the Internet and compare high scores with other kids in the club.

A teacher describes, how joint work may have a positive effect on the relations of kids and parents, because with regard to computer work it puts them in a similar position: *“Here it becomes obvious, that also parents can be learners.”*

3.4 Mobility

This is definitely so with regard to the neighborhood and its culturally diverse inhabitants. Here, adults and kids are in the same learning position, when they explore their neighborhood and respective cultures as part of several projects in the computerclub: *“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 girl remembers her first project work in the club. Thus, it appears that mobility has a considerable share in learning processes in come_IN.

4. THE OLPC XO-1: IDEA AND DESIGN

The designers of the OLPC laptop want to enable kids to “learn, share, create, and collaborate, [...] become connected to each other, to the world and to a brighter future” – and thus “create educational opportunities for the world’s poorest children” [3]. Designed along the lines of constructionist thinking [4] that you learn through doing, an emphasis has been put on software tools for exploration and expression. In a “zoom-interface” called Sugar, programs appear as “activities” and fellow XO-users are organized according to their respective current XO-activities – a structure that is completely different from the common computer-desktop. Also, the OLPC laptop comes with a hardware that invites outdoor usage even under extreme environmental conditions (energy-efficiency, integrated router that allows mobile ad-hoc networking without additional hardware, shock-proof solid state drive, not more than two internal cables, rubber-membrane keyboard). The OLPC laptop technology has been discussed in several publications [e.g. 1, 2, 5].

5. THE OLPC IN COME_IN

The concept and design of the OLPC XO-1 tie in with the main arguments and ideas that have been voiced in the interviews with children and adults in come_IN.

5.1 Fascination and Awareness

As a mobile device for exploration and learning the OLPC may ease the appropriation of computer skills for beginners by means of simply being an easy company in the clubs activities: It may be moved around with in the club, or taken to activities outdoors and thus become an immediate part of activities that otherwise have separately been processed with the computer.

In the interviews, especially adults talked about their try for a well-balanced usage: Here, the OLPC might offer some sort of balance and orientation in form of the organization and display of fellow users according to their respective activities. Coming along with a completely different interface than the common desktop-metaphor, the use of the OLPC may also broaden the understanding of computer technology, enabling its users to later switch between operating systems more naturally – an issue that might be of importance to adult users as well.

5.2 Learning

In the interviews especially adults wished for the computer to be “a tool that ideally does not disturb” and at the same time helps to achieve goals in a powerful way. With the visual display as “activities” in the Sugar interface of the XO, all software clearly subordinates to the users respective aims and plans, thus becoming even less visible and possibly “disturbing” than a “tool”.

5.3 Joint work

The display of fellow XO-users may support joint work and learning processes in come_IN: It goes along the lines of the children’s arguments in the interviews, stressing that there may also be a playful competitive part about skill appropriation. With the Sugar interface of the XO they may see, who else is engaged in what activity, and thus flexibly gather, work or play.

5.4 Mobility

Examination and exploration of the neighborhood and its different cultures was named to have had an important share in come_IN activities. The OLPC may support this by enabling mobile on-site exploration of certain neighborhood aspects and activities. Thus, its usage will enable the computerclub to be much more “outgoing”: Exploration may be an event that’s happening with the computer – instead of an activity that later on will be processed and handled by means of the computer.

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