How the Social Structure of Intercultural Computer Clubs Fosters Interactive Storytelling

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ABSTRACT
Stories play an important role in the collaborative project work of children and adults in intercultural computer clubs “come_IN”. They constitute the narrative framework for the shared (computer) practice of children and adults in the clubs, that are located in socially and culturally diverse neighborhoods in Germany. The aim is twofold: club participants a) share and develop ideas and perspectives – often motivated by local neighborhood life, and b) acquire and broaden skills in the use of modern media and computer technology. Our exemplary analysis of a film project from one of the “come_IN” computer clubs shows the potential of this informal learning setting with regard to children’s interactive storytelling.

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General Terms
Human Factors

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INTRODUCTION
The process of creating and sharing stories is central to intergenerational collaborative project work in intercultural computer clubs “come_IN”. Located in socially and culturally diverse neighborhoods in Germany, the clubs bring together children and adults of diverse migration backgrounds and age. The creation and sharing of stories constitutes the framework for the shared (computer) practice of children and adults in the clubs. Via collaborative project work, the club participants develop ideas and share perspectives and opinions – often motivated by neighborhood life and their own position within. At the same time they acquire and broaden skills in the use of modern media and computer technology. Especially for children growing up in a socially and culturally diverse environment, this narrative frame has proven to be helpful. Our exemplary analysis of a film project from one of the “come_IN” computer clubs shows the chances and limitations of the approach. We first give a brief introduction to the concept and development of intercultural computer clubs “come_IN” in Germany. We then describe interactive storytelling in the club, before we analyze its chances and limitations in the specific case of a film project from one of the “come_IN” clubs.

Our analysis is grounded in data from field notes that have been taken by tutors during club sessions, as well as the film artifacts created.

INTERCULTURAL COMPUTER CLUBS “COME_IN”
The concept of the intercultural computer clubs “come_IN” has been developed within the tradition of computer clubhouses in the US and around the world. Principles of situated, collaborative learning and constructionist thinking have opened up many chances for disadvantaged inner city youth since the first of these clubhouses was established in Boston in 1993 [e.g. 3]. Offering a space for shared (computer-) practice of children and adults in intercultural neighborhoods, the “come_IN” approach developed this concept further, applying it to issues of inter-generational learning and the integration of migrant communities in Germany. Situated in primary schools, the intercultural computer clubs “come_IN” offer a space 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.

The multi-ethnic neighborhood has a large impact on the topics of projects and activities of the first “come_IN” computer club that was opened in Bonn Nordstadt in March 2004 [7, 9, 10]. Guided by school teachers and tutors from the “come_IN”-team, small magazines about the neighborhood have been created; shared experiences like a soccer match with a neighboring Turkish soccer club
resulted in photo- and video-projects, or have been processed by means of MIT’s visual programming environment Scratch [5, 6]. The transferability of the “come_IN” concept was tested with the establishment of a second “come_IN” computer club in a culturally diverse neighborhood in Siegen in 2006. There, social and technical aspects of the concept have been refined by establishing an opening and final short discussion round, where club members gather and plan current and prospective activities, and broadening flexibility in play and work by retrofitting the club equipment of stationary PCs with mobile laptops, at the same time structuring the clubs file repository with personalized logins. Four new clubs have been founded in summer 2009: two clubs in a school complex in Bonn Tannenbusch with primary school, secondary modern school and grammar school; a club in a primary school in Dortmund Nordstadt, and one in a youth center in Kreuztal.

Basic rule for the computer clubs’ weekly two-hour meetings is that every child should participate together with a parent. This rule was changed after a while – children, who could not participate with a parent (because parents had to work during club time), were encouraged to join “come_IN” with another adult family member or friend. (Computer) practice that is shared across cultures and generations 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 in their respective neighborhood, 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.

The accompanying “come_IN” project is guided by principles of participatory action research [4], gathering information on collaboration and interaction, appropriation to media and computer technology, learning and social integration from weekly field notes, narrative interviews, from group discussions, audio and video material. Complement to this qualitative social research is the active or observing participation in the clubs.

**INTERACTIVE STORYTELLING IN THE CLUB**

Storytelling does play an important role in the informal learning setting of “come_IN”. Applying perspectives of Stierle [8], Bruner [2] and others [e.g. 1] to a neighborhood setting, it shows that it is more than a mere amusement and pastime. Storytelling is a way of processing (neighborhood) experiences and personal ideas via interactive creation of narrative structures by means of modern (computer) technology.

Especially on the side of the children this opens up the opportunity to gain in eloquence [e.g. 1] – with regard to speech and the confident development and negotiation of opinions and perspectives, as well as with regard to technology use. Looking at the entire life span of a collaborative project work in “come_IN”, the computer club structure provides several narrative structures for children (and adult) participants to potentially engage in:

- **treasure box of ideas:** This wooden box that is kept by some of the clubs constitutes the starting point for narrative activity – in form of colorful paper cards where participants write down suggestions for further project work, e.g. the creation of a film or animations in Scratch.

- **discussion round:** As the opening and closing point of each club session, these rounds are the place for all participants to gather and jointly plan current and prospective activities. Here, the children can develop a sense for processes of negotiation of opinions, compromise and decisions. They develop their skills in voice their ideas, and in listening to others doing the same.

- **collaborative work:** Children can develop a sense for the structuring of joint activity and their own share in it – e.g. by providing help to other, less advanced club participants, with a skill that they themselves already have acquired.

- **project content:** Since project ideas are jointly developed and decided upon in the club, their content is up to participants themselves and provides ample opportunities for the children and adult participants to creatively bring in imaginative ideas, and also transform neighborhood experiences into narratives as contribution to a project.

- **technology:** Computer and media technology is the means to realize project work in the computer club, so it does contribute to narrative structure in the club only indirectly by supporting and triggering interactions among participants – e.g. the sharing of created artifacts.

**CASE STUDY: FILM CREATION IN “COME_IN”**

So, how do these structures play out? Our exemplary analysis of a film project from one of the “come_IN” computer clubs shows the potential of this informal learning setting for (children’s) interactive storytelling.

The idea to the project developed as one of the first activities of the newly founded computer club in Dortmund Nordstadt. A stable group of five to seven women and seven to twelve children had developed during the first projects in the club: the women had explored a PC’s constituent parts, completely tearing a computer apart and bringing it back together again as “their” computer in the club with the help of a tutor; the children had gathered first experiences in the creation of little animated stories in Scratch. This children’s activity led to the development of a storyboard that was then used by the group to apply for a film set with wooden box as the “stage”, digital camera, and laptop that the German children’s channel Kinderkanal lends for film projects.
In the club’s joint discussion round, it was decided – mainly as a reaction to the children’s engagement – that a film would be made. A topic was easily decided upon – with school holidays just being finished, participants quickly agreed that their film story would be a travel story. Since children had just acquainted themselves with the use of MIT’s visual programming environment Scratch, it was a natural next step to everyone to collect and develop ideas for the storyboard using Scratch.

So, two separate activities developed in the club at first: the women were eager to take possession of their newly built and self-installed computer by exploring it, while the children developed ideas for the film storyboard in Scratch. Some could be observed referring to personal (family) background, e.g. when designing an episode at a swimming pool (“This is just like it looks in Turkey – that’s where my family comes from, so we go there for visits, you know!”), or when choosing black, brown, green and purple for painting a beach episode and dancing ballerinas – the colors of Ghana’s flag. Others decidedly engaged in designing something other than everyday life – astronauts exploring the moon and being chased by aliens, or a wild underwater world with various colorful fish and other underwater species (Figure 1).

![Figure 1. Ideas for the film were collected in Scratch.](image)

In the children’s minds it wasn’t all too difficult to bring these differing ideas together and built them into one joint storyboard in Scratch. (“We make the alien chase the astronauts away from the moon, so they fly all the way to the swimming pool.”) In the pool the astronauts discovered a party of fish and underwater species, and almost got eaten by a shark – if it wasn’t for a bunch of dancing ballerinas who saved them in the end.) This story was “told” a second time – this time with pen and paper, when the children wrote their application for the Kinderkanal film set with the help of a tutor (Figure 2).

Figure 2. In a letter with a storyboard idea, the computer club applied for the film set.

In the course of this strive for perfection the children playfully discovered the advantages and limitations of the different technologies for the realization of their narrative: a movement that requires no more than the connection of two of programmable bricks in Scratch might demand half an hour of intensive film work – and a sequence that was easily performed with the camera could not be done in Scratch by the children alone for they did not yet fully grasp the underlying programming logic.

A strong sense for authorship could also be observed in each club session’s closing round, where the children insisted that all participants would gather and watch the film work that had been completed that day (“Mum! Pay attention – it is movie time now!”). The women watched the growth of the film with great interest and aided the children when needed. Their more active part came towards the end of the project, when sound to the film was recorded and synchronized with the pictures – a time-consuming editing work the eight- to nine-year old children still lacked patience to do.

What came to life in the end is a three-minute film that closely resembles the story that had already been told in
Scratch before – a fact that none of the children or adult participants ever complained about over the course of the entire project. Children and adults identified with the story, it was part of “their” club and its members – every episode related to the people who created it (a fact that became most visible when one of the children did not return to the club after school’s holidays for the actual filming work, because she and her family had emigrated – “her” episode wasn’t just taken possession of by someone else or skipped completely, but instead children kept referring to her when filming it “on her behalf”).

Looking at the narrative structures that the “come_IN” concept provides, we find them to be of varying use in the discussed case of the film project:

- **treasure box of ideas:** Participants were actively engaged in their club work, so this structure wasn’t needed for the triggering of a new project idea – in the discussed case, the idea to the new project was born out of final activities in the previous one.

- **discussion round:** For the film project, these rounds have proven helpful for the planning and structuring of activities over the course of the project’s work – and for the children to develop an sense for this organizational work that encircles all collaborative activity. Step by step they could join in and learn to contribute to this part of a project, too.

- **collaborative work:** All participants had a strong sense for “their” project and identified with it, so it was no question that children as well as adults provided help where and when needed to contribute to the finalization of the film.

- **project content:** Content came to life in a playful way – being motivated by the neighborhood and local, personal experiences in a way that imagined narratives either closely resembled these, or purposefully kept a distance, content often times appeared to be rather a vehicle for the exploration of unknown and thus fascinating technologies than it appeared to be the center of project activity.

- **technology:** The used computer and media technology in the discussed case was unknown to most participants and thus very fascinating – so, in this case, technology did not only contribute to but actually motivate the interactive creation of a narrative.

CONCLUSION
Our exemplary look at the film project shows: as much as the engagement in the project’s narrative itself, it is its embedding in a sustainably structured context that counts for successful completion and social and technical learning effects among children as well as adult participants.

It is the little surrounding narrative structures contained in an informal learning setting like the intercultural computer club “come_IN” that appear to provide the support needed not only for the development of creative ideas, but also for the social and technical eloquence needed for their joint, interactive realization.

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