

Mobile Collaborative Live Video Production

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ABSTRACT

In this position paper, we present an ongoing design oriented project examining the mobile and collaborative production of live video. We argue that mobile phones equipped with cameras will play an important role in the future of user multimedia content creation. Informed by our findings from previous projects with similar topics of exploration, however with other users and settings such as VJ's in a club setting and the professional crew producing live sports television, we now turn to teenagers in a school setting to learn more from early adopters, and gain new insights regarding the possibilities for the design of innovative services. By arranging a series of discussion seminars, on the teenagers' relation to, and use of, their mobile phones, combined with practical workshops on video production with mobile phones, we examine the design space for mobile collaborative live video production.

Categories and Subject Descriptors

K.3.1 [Computer Uses in Education]: Collaborative learning.

H.5.3 [Group and Organization Interfaces]: Collaborative computing

General Terms

Design, Human Factors.

Keywords

Mobile video production, user content creation, mobile phones, school, design, collaborative,

1. INTRODUCTION

In recent years a number of trends on user content creation on the Internet, such as video-sharing and collaborative editing have emerged. This phenomenon has gained interest from the HCI and CSCW research communities, where a number of projects have been presented, taking the development further, exploring the mobile aspects of user content creation. Tazaki [2006] displays a fictitious, however thoroughly elaborated, concept of turning passive media consumers into collaborative media producers. Jacucci et al [2005] and Sarvas et al [2004] explore the potential in camera phones when co-experiencing events in groups. Esbjörnsson et al [2006] introduce a system for light-weight collaboration in sport spectating. Finally, Kirk et al [2007] investigate what people do with video when it comes to aspects of recording, editing and sharing.

In parallel with these research efforts, we are carrying out the More Video! project, consisting of three subprojects. The common denominator for the subprojects concerns the

investigation of mobile and collaborative live video production and use, a theme which we believe will play an important role in the future of mobile multimedia – content creation and use. The subprojects are:

- An empirical study of VJ's, exploring the possibilities to invite club visitors to become active co-producers of the visuals on display through the WeJ-application [Engström et al, 2008] (to be presented at MobileHCI 2008).
- An ethnographic study investigating the professional process of collaborative live TV production of an ice hockey match [Engström in submission], to inform the design of live mobile collaborative video production tools.
- Finally, and in focus of this position paper, an investigation where we turn to teenagers in a school setting to learn more from early adopters, and gain new insights regarding the possibilities for the design of innovative services supporting mobile collaborative live video production

By arranging a series of discussion seminars, on the teenagers' relation to, and use of, their mobile phones, combined with a number of workshops on mobile video production, we examine the design space for this type of services. The starting point for this study derive from our previous work, representing other contexts of use, revealing how VJ's are willing to invite club visitors to become collaborators in the content creation process, and inspired by our findings on the professionals collaborative practice of producing live television. These previous findings play a substantial role in developing a design space for this type of services. However, we believe that our ongoing work (by the submission deadline we have given 2 out of 6 gatherings) adds to this body of work, by investigating a specific context of use, consisting of a group of early adopters of mobile services, and how they could possibly apply this type of services in a school setting.

The paper is outlined as follows. First we start by giving an account for three major areas of related research. We thereafter describe the setting, and our research approach applied in the project. In section 4 we discuss and summarize our work in this stage, and discuss the future work.

2. RELATED RESEARCH

This work clearly relates to three areas of research, the first concerns mobile group media, the second covers early initiatives on mobile collaborative video production, and the third briefly covers IT-use in educational settings.

2.1 Mobile Group Media

Jacucci et al [2005] come up with interesting results in their study on mobile group media, where they equipped a number of users with multimedia phones during a specific event. Their study display how camera phones can be used to enhance a shared spectator experience. They argue that that in this context, mobile devices can be considered beyond person-to-person messaging and beyond passive consumption of multimedia content. Their study on users equipped with camera phones display how spectators co-experience events in groups, and how mobile imaging can be a participative practice that is enhancing the event's experience on-site, rather than merely documenting it or communicating it to others [Jacucci et al, 2005]. Accordingly the type of event they focus on takes place simultaneously on several different places, and the spectators are situated on various geographical locations. This in contrast to the study by Sarvas et al [2004] who studied the sharing of mobile pictures from the perspective of the picture's lifecycle from capture to archive in a photo blogging system. The usage of camera phones in their study was during everyday life. Accordingly, the results display how the users captured pictures during their free time, how they created galleries where they shared the pictures with friends and how they discussed the pictures in retrospect. However, a similarity to Jacucci et al [2005] is that most of the pictures taken during the study derive from what Sarvas et al [Sarvas et al, 2004] categorize as events. Closely coupled to capturing photos from certain events, is also the activity of creating stories by what is uploaded and shared with friends in the galleries. The storytelling aspect is highlighted as an important aspect of image capturing and sharing in Sarvas et al [2004] but also in Mäkelä et al [2000]. In both these cases it concerns the sharing of pictures in retrospect of an event. Accordingly, Jaccuci et al do also emphasize storytelling in a way, but it is not expressed that explicit seeing that they are emphasizing the co-experience of an event, hence the story is more obvious for the people sharing the experience.

2.2 Mobile Collaborative Video Production

A recent research area emphasizes mobile collaborative video production. In a study on 'Understanding Videowork', Kirk et al [2007] investigate video recording among teenagers, and how they used personal mobile phones for this. The analysis showed that traditional video cameras were used relatively formulaically, while mobile phones were used more spontaneity in video capture. This spontaneity was also visible in the sharing of videos, which was usually done locally immediately after recording. Users did not see the point of manipulating the clips, as these were short snippets of action, and the clip title gave enough information for later recall. In a technical slant on spontaneous capture, Tazaki [2006] presents a conceptual design, InstantSharecam, which emphasizes the collaborative process in video production. She envisions a group of users, each equipped with a video camera, simultaneously shooting and co-directing coverage of an event in real time. With some similarities Engström et al [2008] presents a study on how VJs produce and mix visuals live. The study informs the design of the WeJ prototype, which is intended for use in club settings, where club visitors can capture video and stream it directly to the VJ, who can merge the video into the live VJ performance. This represents an illustrative example of mobile collaborative video production.

2.3 Learning Environments

The third area of related research concerns the setting in which we are conducting our work, that is the school setting. IDC (Interaction Design and Children) and CSCL (Computer Supported Collaborative Learning) represents two major areas of research when it comes to the use and adoption of new technologies in educational settings. However, Fernaeus et al [2004] touches upon the idea that studies on children's use of digital construction tools have a misguided focus on the learning aspects, hence this leads to the fact that several other interesting aspects are missed out, such as negotiation and argumentations regarding playability, aesthetics and collaborative handling of complex technology. Accordingly, in their research they *"...initiate a move away from viewing creation of dynamic applications as a means to foster learning in particular domains and instead view this as an aesthetic activity – a form of expression that can be used to communicate and express ideas in a more general sense.."* [Fernaeus et al, 2004]. In their recent work Fernaeus and Tholander [work-in-progress] emphasize that: *"..A major theme in IDC, ever since the early work of Seymour Papert and Alan Kay in the 1960's, has been that technology for children should be grounded in everyday play practices [Goldberg and Kay, 1977; Papert, 1980]. .. Our impression is however that designing for, theorizing about, and making studies in casual use settings, seem to be much further developed in other areas of HCI than in the design of children's technology.."* [Fernaeus and Tholander, work-in-progress].

Hence, the critique they deliver to this area of research concerns a general and somewhat exaggerated strive to deliver research focusing on the formal educational activities, missing out the other activities taking place.

3. METHOD

The project is carried out on an elementary school in Kista, Sweden. The school is geographically situated in the middle of the mobile IT-industry in Sweden, but still quite far from it in terms of collaboration, incorporating/inviting the pupils to the industry. Accordingly, this opens up for an interesting collaboration between research, industry, and an elementary school. Additionally the project setup, with this school, is supported by the Stockholm municipality. The school had problems five years ago, when the amount of pupils decreased and they selected other schools. However, this has changed during recent years [By, 2005].

The initial contacts with the principal of the school, led us to two teachers which were very interested in the project, and motivated to open up for collaboration with research and industry, among other things to motivate and inspire the pupils to study. The teachers informed about the project in their classes, and the pupils were encouraged to sign up for the project if they were interested to take part in research, and perhaps come outside the walls of the school (which was part of the motivation for some of the pupils). For practical reasons, the group was limited to twelve people. The teachers were responsible to choose the most suitable pupils for the project, i.e. the most motivated. At the first session the group turned out to consist of two male and ten female pupils, nine of them with an alignment in aesthetical subjects, and three of them with a mathematical alignment. The common denominator was that all loved their mobile phones.

3.1 Practical Implementation of the Project

To obtain an open climate where the pupils feel confident, i.e. learn to know us, and encourage them to speak out loud, we put together a course with six gatherings during a two month period, each gathering will take approximately 2 hours, with the following schedule:

- *Introduction session* – Where we and the pupils present ourselves. During this session we also give an overview of design oriented research in general, our earlier projects, what this project will be about, and our motivation for the work. The students are encouraged to motivate their presence in the project. The session took place on the research institute, which was appreciated by the pupils.
- *Media habits* – This session was divided into two parts. In the first part we encouraged the pupils to bring forward their mobile phones, and discuss their usage of them. In the second part we narrowed down the discussion to mobile photo and video, where we also displayed the possibilities of for video production. This session was held in the school. After this session the teachers divided the pupils into four groups, and each group will have the possibility to borrow a SonyEricsson K850i [SonyEricsson, 2008] which will be used during the project.
- *Video editing* – This session aims to give general guidelines for video editing, and specifically the use of free online tools such as jaycut and jumpcut. The initial session will be more of a lecture, which will be followed by an exercise where the pupils will use the camera phones to do some recording, and uploading and editing video on these sites. The teachers have earlier chosen a theme for their video production, which they will work with during the spring.
- *Live TV* – This session displays some similarities with the previous one, however we now start with a lecture where we display our previous work on analyzing professional live TV production. We will discuss the possibilities to learn from this and move important findings to the phone. This will be followed by a session where we continue recording with the mobiles, but now we will use the editing tools in the phones to create video.
- *Display and discussion on their work* – This session is dedicated to the display of the pupils' earlier tasks of recording and editing videos. Each group will present their work, how they have done it, their thoughts about the production process, etc.
- *Discussion / evaluation* – During the last session we will sum up the project together with the pupils, and most important, we will conduct a number of design exercises on mobile collaborative live video production.

These six sessions described above are only for the twelve pupils. By the end of the semester we will conduct a one-day workshop with the teachers, containing a condensed version of the seminar series.

Each of these sessions will be video recorded, and sections important for our future design will be transcribed and coded.

4. DISCUSSION

At the time of the workshop, we have gathered interesting empirical data on the design space for mobile collaborative live video production. From the planned gatherings we will have collected empirical material on the ways in which they use the camera phones, what kind of material they recorded, if they shared it, how they edited the material, any collaborative aspects of their work, etc. We are also interested in examining if there are any differences in how the teachers use (and advocate the pupils' use of) the technology, as compared to how the pupils make use of it. The findings will add to the existing body of research on mobile group media (co-experiencing events when being remote) and on the area of mobile collaborative video production. The school setting may give practical insights to the critique of related research in learning environments, as stated by Fernaeus et al.

In sum, we believe this area will play an important role in the future of user content creation, where mobile phones become a promising tool integrating different types of functionality for the collaborative production and viewing of video material.

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