Playing, Performing, Reporting – A Case Study of Mobile Minimovies Composed by Teenage Girls

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ABSTRACT

Digital camera functionality integrated into mobile phones is providing a new tool for users to create content, however user created mobile videos have so far remained a rather unexplored area. In this paper we present a study of 263 teenage girls who created and authored minimovies using the N73 mobile phone. In a semi-controlled setting, the participants produced 82 minimovies, analysed in this paper for their structure, style and feature usage. We compare across age groups, and discuss lessons learnt regarding the social nature of mobile content creation.

Categories and Subject Descriptors

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

General Terms

Design, Human Factors.

Keywords

Mobile phones, multimedia, user created content, user studies.

1. INTRODUCTION

In just a few years, mobile phones have become an integral part of everyday life. Research has revealed several phenomena revealing how the use of mobile phones have shaped social interaction and created new communication subcultures, especially due text messaging [5][10]. The mobile phone adoption rate is extremely high in most developed countries around the world, with the gadget being carried by the user practically all the time [14]. In addition to communication features, mobile phones now typically include a device integrated digital camera capable of recording

still images and video. The research around the use of mobile multimedia has so far concentrated on mobile music consumption [18][25] and photos in terms of cameraphones [15].

The omnipresence of a mobile phone in a user's life makes it an interesting tool to record the surroundings, and the use of cameraphones has provoked studies related to the practices the users have with their devices [15] as well as developing the technology further e.g. by exploiting the metadata information of the taken images [3]. Also, emerging applications such as Nokia Lifeblog and ZoneTag to support the activity to record and organise cameraphone photos either for the user's own records or to share with others. Utilising a cameraphone as a self-documenting tool has been used e.g. in [7], where a mobile phone strapped to the user's body automatically takes photos and uploads them to a server. A similar principle of automatic life documentation has been introduced with SenseCam, however it requires the manual transfer of the data from the device to PC [17]. In addition to storing records of life experiences for the users themselves, a mobile phone is a reporting tool which is now used for different types of documentation purposes, e.g. for capturing user feedback in end-user studies [9].

The photo/video taking capability has increased the possibilities of self-expression in creative ways. User created content utilizing audiovisual recording capabilities of the mobile phone can bring forward novel applications, such as the MMS-based comic creation tool described in [21]. These tools have also been used for mentoring young girls in technology education [11].

Studies looking at the use of mobile video or TV are still a rarity, and so far the emphasis has been on the consumption rather than creation [19][20][22]. Studies related to video editing and usage practices are so far related to fixed settings, such as PC and videocenter use, typically in home environment [1][13][23]. However, the creation of mobile video content is still a largely unexplored area, and the activities with the mobile phone as tool for composing them uncharted.

In this paper we look at user created multimedia content in a setting where users were asked to freely create a minimovie by using a mobile phone in a defined setting. Each movie was created in a team of 3 people, the participants being girls aged 10-18 years. In addition to the emphasis on mobile multimedia user created content, our study also looks at girls and technology.

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This paper presents a large study, bringing together two smaller studies, investigating the creation of minimovies. The results are presented in terms of the video styles used, the video structure adopted and the features used on the phone. Finally, we discuss our findings and present our lessons learnt.

2. RELATED WORK ON SOCIAL MOBILE MULTIMEDIA

Mobile phones are used for social interaction between people, primarily to stay in contact within different social circles by calling and messaging. The social nature of mobile communication technology is strongly grounded, and association to use the device in those situations lowers the barrier to expand its use for other types of social interaction as well. With the developed device functionality and data transfer capability, creating and sharing pictorial and audiovideo content has provided new ways for social interaction with mobile phones.

The strong affiliation of mobile multimedia with shared experiences and group cohesion is evident, and interestingly the meaning of shared experience with people that are present when taking a photo has been emphasized with cameraphone usage [15]. More than half (56%) of the 295 images in the study had social and affective reasons for the capture – to enrich the mutual shared experience either *in situ* or later (35%), or to communicate the event for an absent friend or family member (21%).

Somewhat similar findings that Kindberg et al [15] reported on mobile phone photo taking have also been found with video capturing practices. In the study of user practices related to videowork [16], Kirk et al. report on light-weight vs. heavyweight videowork, where lightweight videowork employs mobile phones as capturing devices. Another characteristic for lightweight videowork is that shooting video is typically spontaneous, mostly used within the moment to reflect the activity or ‘just for laugh’. The function of the material is often quite ephemeral and has meaning for the people present in the shared experience.

When looking at the use of cameraphones, practices related to tagging photos and sharing them online has recently been discussed. For instance, privacy issues related to mobile and online photo sharing have social aspects. Social disclosure e.g. of being somewhere without inviting a friend may be found embarrassing and uncomfortable, and may have an effect on annotating and sharing the pictures [2]. Tagging also has social motivators, for instance, communication with friends and family was found to be a more common motivation in tagging with ZoneTag photo sharing application than organization of the content for them [4].

Another emerging phenomenon within the field of mobile multimedia is the adaptation of mobile TV. Mobile TV - and mobile video usage related to that - has so far been investigated from the content consumption rather than creation point of view. The special characteristics of the mobile platform have influence on an individual’s viewing habits, as mobility allows people to use different time slots for particular purposes, i.e. what to watch when, or just to kill time in a new way [20]. Using mobile multimedia for gift giving practices, e.g. recording something for a friend, has been discussed in [12] in the context of exchanging TV content. Whereas this highlights the sharing behaviour, mobile multimedia is also used for managing privacy. O’Hara et al [19] have investigated the social phenomena taking place with mobile video consumption, and their study reveals that technology is used

for activities such as for managing solitude, and for enjoying personal content while still sharing the same space e.g. for social purposes [19].

Our study differs from earlier research in both content and study setting. Whereas most of the research related to user created mobile multimedia content considers photos, we focus on user created mobile videos, more specifically to creation of mobile minimovies. Within this, we concentrated on a rather specific user group – 10-18 year old girls.

3. RESEARCH STUDY

3.1 Place, Participants and Task of the Study

The study took place in two parts during 2007. The first part of the study (Study 1) took place in June during the *Central Coast TechGirls* event at the Mingara Convention Centre in Tumbi Umbi, 45 minutes north of Sydney, Australia. The second part of the study (Study 2) happened in October during a series of *Technology Takes You Anywhere* events at Griffith University and the University of Queensland, both within 30kms of Brisbane. Both events aim to promote technology education and technology careers to girls and show them that working with technology can be fun, exciting and socially useful.

Study 1 was situated in the event’s ‘demo zone’, where the participants could wander around and observe the displays and stands of different presenters from the field of Information Technology. In Study 2, the mobile video filming was one of the interactive presentations that the student groups participated in a fairly controlled setting.

Figure 1. Age distribution of the participants in the study.

83 high school girls participated in Study 1 and 179 primary and high school girls in Study 2. The girls were from various local schools. Study 1’s sample included ages 13-18 years, with an emphasis on 14-15 years old. Study 2’s participants were aged 10-16 years, with emphasis on 11-12 year olds (see Figure 1). The volunteer participants formed groups of three according to their own will, making 28 groups in Study 1 and 59 in Study 2.

Figure 2. Video filming state, video editor state and the standard filming position on the N73.

The participants (10-18 year old girls) were chosen for the study for three reasons: access, audience and location. In Australia, gaining access to study people under 18 years of age is difficult due to strict ethical rules; approval was granted by parents and

evidenced by a form the girls presented on the day. This 'audience' was chosen specifically as they present a target group not often considered in technology design. Lastly, the events were deemed a suitable location because the girls were there to learn about technology, and were willing, and even excited, to participate in the study.

For the filming segment the participants (in their group of three) where given the task to compose a minimovie about the technology event, with a maximum length of three minutes for the final clip. The groups were given one Nokia N73 mobile phone (with 3.2 megapixel camera) per group with a 256 Mb memory card installed. For this task the groups were given 30 minutes of time. With regards to the content of the minimovie, the groups where instructed that they may film anything of their choosing within the event environment. Minimovies composed with the phone are illustrated in Figure 2.

3.2 Data Collected

Participants were asked to complete a short survey before and after filming. Overall, the level of regular mobile phone use among the participants was high; 78% owned and 8% shared a mobile phone with someone. The portion of mobile phone owners was higher with older students – among the 84 participants from Study 1, 77 owned a mobile phone and 7 shared one with another family member. A large portion of the participants were experienced in casual photography and videos, but less experienced concerning editing features, see Figure 3. The same tendency was shown in both groups although there was less experience among the participants in Study 2 - 86 % (72/84) and 56% (101/179) of the participants in the 1st and 2nd studies had used camera phone for taking photos, respectively.

The study setting was presented as a competition, where the prize for creating the 'best minimovie' was a Nokia N73 mobile phone for each member in the winning team. Criteria for judging the results were not given to the participating team.

Figure 3. Participants' earlier experience related to cameraphones and video composing.

The study consisted of three parts: a pre (background) questionnaire, the minimovie filming segment and a post-questionnaire. The pre-questionnaire consisted of 10 questions

and the post-questionnaire consisted of 9 multiple-choice questions and 4 open commentary questions.

Groups were not instructed how to use the device. In a case of not knowing how to use certain features, the groups had the possibility to ask for guidance and such guidance was given. Some groups asked for help, some didn't.

3.3 Hypothesis

In this study, we wanted to generally investigate the characteristics of the created minimovies, their style and content. In addition, we formulated the following hypothesis:

- *Creation of mobile minimovies has a strong social nature.* This assumption was based on the findings of earlier research on mobile phone usage culture, as mobile phone is a device with a strong social affiliation [24], and the cameraphone photos are often used for social sharing [5].
- *The technical features would be used similarly as they appear in a traditional video camera.* We expected zoom to be used a lot, and different color options and editing functions rarely. This hypothesis was based on the assumption that the earlier experience on video cameras would be shifted to the use of a mobile phone.

4. DISCUSSION OF THE RESULTS

4.1 Video styles

By analyzing the videos filmed, five different styles were established, see Figure 4.

- Reporting
- Free mode
- Fictive storytelling
- Performing
- Verbal presentation

The most frequent style used was the *fictive storytelling* (29 out of 82 minimovies), as illustrated in Figure 2. *Fictive storytelling type videos* are videos with acting a planned play with a storyline. Participation of the cameraperson varied, in some the cameraman was just shooting the film, in others they acted as a storyteller or commentator.

The second most frequent styles used were *reporting* (14/82) and *free mode* (14/82). In a *reporting* video various targets from the location were filmed and the videos included reporting verbally what is seen in the video. The verbal reporting was done by the person filming in most cases, but also by the people in front of the camera in a reporter manner.

Figure 4. Amount of different style of videos created in the study.

A *Free mode* video consisted of filming various targets without an apparent planned structure. Like in reporting videos, the free mode videos also include talk by the person filming and by the people in front of the camera, but in free mode videos the verbal content did not follow any planned structure or aim for a specific target.

Verbal presentation (13/82) type minimovies consisted of 1 or 2 performers having a verbal presentation. Presenters stood facing the camera, giving the presentation to the camera. The content of the presentations varied from technology to other matters. The style of the presentations was much like in presentations given in schools in front of the class, and the verbal substance appeared well memorised. The topics varied, and e.g. animal rights or technology exploration were presented.

Performance videos (12/82) consisted of various types of performance acts to the camera, e.g. singing, dancing and other forms of performing, see Figure 5 for example.

When comparing the created videos across age groups, it was evident that younger girls were more eager 'be on stage' for the camera - they appeared more in the shots, acted for the show, and performed more to the camera than the older participants. Younger participants concentrated more on filming themselves or the team, older more to the environment. Younger participants also rehearsed for the shooting, and often the same shot were repeated without deleting the old ones. Here, social aspect of creating the movie together and having fun was strongly part of the activity. Older participants took more advantage of the possibilities with the technology, e.g. with deleting shots and editing clips.

Figure 5. Examples of the *performance* (left and middle) and *fictive storytelling* ('dramatized phonecall', right) minimovies.

The amount of improvising while shooting was considerably large, see figure 6. This varied according to the type of video shot, the most planning used with making performance and fictive storytelling videos and the least with free mode minimovies.

Participants in Study 2 expressed a higher level of planning in their videos. This is also apparent from the post-questionnaire (Figure 6.) The higher rate of planning for Study 2 is largely due to the different types of video shot when compared to Study 1. The large amount of verbal presentations and fictive storytelling videos are largely responsible for the higher rate of planning (Figure 4)

Filming in a social situation and in a group was considered to be fun by the groups. This was very apparent when observing the participating groups in action, and also according to the post-questionnaire, where 65 out of 82 groups gave the highest points (5 in scale 1-5) when judging how fun the filming had been.

Participating teams were very open to film a variety of scenes and people. The minimovies included people from their own group,

from other groups, the organizers and on occasion also the cameraperson. When analyzing participation of the group members, no clear trend could be defined. What can be said is that in many minimovies only a selected group of members is visible in the shot and on several occasions some members of the group are not seen at all in the filming. It is unclear whether these members participated in the filming or just walked behind the camera out of sight. The large amount of presentation, performance and fictive storytelling videos however indicates that in a social situation select members are willing to perform in front of a camera while someone else is filming.

When comparing the visibility and eagerness to participate across the two studies, the participants of Study 2 were noticeably more willing to perform various tasks in front of the camera. This may be because the participants in Study 2 were younger. With an emphasis on the ages 11-12, a more childlike attitude towards making a video is apparent. The playfulness of the performances and fictive plays supports this notion.

Figure 6. The amount of improvising (1) vs. planning (5) the shots according the end questionnaire

The most surprising result is the level of verbal presentations in the videos by the younger participants in Study 2. While in Study 1 no-one did a verbal presentation, 13 out of 54 teams made a presentation in Study 2. One reason for such a result is that making a verbal presentation could be perceived as the least embarrassing way to make a performance and the level of self-performing is lower than in, for example, a dancing performance. Another affecting factor is how participants from different age groups experience such an event. For the participants of Study 1, the atmosphere experienced appeared freer than in the Study 2, where the participants more easily took it as a part of school.

4.2 Video Structure

The majority of the minimovies, 54/82, were single clip videos. In these videos produced by the participating teams, outputs consisted either of one long single clip without any breaks, or a large collection of different clips with one being the one intended for the competition and the other functioning as trials. In the single clip videos no clear trend could be seen concerning the length of the clips.

Figure 7. The length of the single clip videos in seconds.

The rest, i.e. 28/82 minimovies were multi-clip videos, which consisted of different scenes done by using either the pause function or the merging option provided by the device. The number of clips used in one minimovie varied from 2 to 20. There is a noticeable increase in the amount of clips in Study 2. While using the merging option, 2 teams out of 28 accidentally merged the clip to itself without noticing it thus forming a 2 clip multi clip video. In addition, some participants asked guidance in merging clips, and were able to do editing after that.

Figure 8. The length of the clips in the multi-clip videos [s].

The length of the clips in single-clip and multi-clip minimovies are reported in Figures 7 and 8, respectively.

4.3 Used Features

Using device features were barely demonstrated in the minimovies. Especially the lack of zoom was very noticeable, particularly by the participants in Study 1. In the case of needing a closer look at the target, in almost all cases the cameraperson took steps forward or reached arms forward to move closer to the target. Only in the videos by 1/28 in Study 1 and 9/54 in Study 2 was zooming used during filming. In the other cases when using zoom, it was done before starting the recording.

Other features used were the *black & white* (BW) option, *editor*, *adding still images to the video*, *opening titles (text)* and *naming the file*. The black & white option was used on 3 out of 82 minimovies, see fig. 9. From a visual perspective, the use of the option for one team was due to wanting an old feeling to it. For another group it was used to obtain a ‘horror movie’ feeling and to look like the movie Blair Witch Project. For the third group it apparently served no higher visual purpose. The editor was used to merge files together. Merging was also done by using the pause function. Only four of the videos were given a name.

In Study 1, all the minimovies were shot by holding the device in hand. In Study 2 one video was shot by placing the phone on the ground. The majority of all 82 videos included moving the camera around. Most of the videos were filmed mainly from more than a metre away from the target. Close-up shots were a rarity. Only one minimovie (1/82) included a deliberate, long-lasting close shot, although short close-ups of a face of a person and other short close-ups were used in addition in other videos (Figure 9).

Figure 9. Examples of BW (above) and close-up shots (below).

5. DISCUSSION

After hours of analysing videos, we could conclude that the hypothesis on the social nature of the mobile minimovie composition was strongly supported. This was evident from the observations, participant feedback, and the interaction that occurred. The participants had fun together, and the interaction both in the minimovies and around filming was vivid and enthusiastic. Also in our study, the mobile technology functioned as a mediator in involving the girls have fun by doing together. Brignull et al [6] have reported similar findings with the use of public communal interactive displays. Here, students could display, share and exchange media with Dynamo system. It was revealed that the adoption of the system provided possibilities to promote a social atmosphere and engage people to do something together [6]. Moreover, Taylor et al [24] have discussed about the role of mobile phone in young people's lives as a tool for sharing emotional experiences. This kind of social function was emphasized also in the process of creating mobile minimovies.

The hypothesis on using the device and application features similarly to conventional video cameras was only partially supported. Zoom was used surprisingly little, although its existence in a conventional video camera is commonly known. This raises the question of how commonly is it known that you can actually zoom with a mobile phone and how is this feature accessed, if known. The observation that the users took steps towards the object when needing a closer look implies that simple walking and stretching your hands is easier than figuring out how to zoom. Avoiding the use of technology may indicate that current UI solutions may be too slow or cumbersome, and that playing with the gadget details is not favoured in a social situation.

The convenience of use and users' motivation can have a big effect on why and how the applications are used. Here, the result of having so many single-clip minimovies was heavily affected by the lack of knowledge about how to use the device to remove or merge video clips. During the competition, the most frequently asked question for guidance by the participating teams was "How do we edit clips?" Additionally, the form factor of the device may effect heavily on how it is used. For instance, the N73 poorly supports the possibility to leave it on a table for filming.

The authors found it interesting to study the use of mobile technology within the specific user group of young girls. Females make up half of the population however they are not represented as such in design teams and technology development. This may easily lead to a significant gap in perspectives presented in the development of new technologies, and therefore specific appeal to that part of the consumer market is limited. Information technology (IT) work and education was originally thought of as a 'level playing field' where gender would be irrelevant, allowing flexibility in time and space [26]. This is possible as most current school children do not know a life without ICT as they have been integrated into all aspects of their life including home (e.g. watching a DVD), school (e.g. playing educational computer games) and personal life (e.g. talking to friends on a mobile phone) [26]. However, it is rare that they associate this use with development and the idea of a career. As younger girls are often quick to adopt new technology (eg mobile phones), it is essential to consider how they use the technology. It is then important to design features and support for their social interactions accordingly. The two studies presented in this paper and the issues relating to use give us some insight into designing technologies for this section of the consumer market.

6. CONCLUSIONS

This paper presents the results of two recent studies of mobile phone minimovies created by 10-18 year old girls, involving 263 participants and resulting 82 minimovies.

Across the groups, a variety of minimovies were created by the girls. On analysing the minimovies, it was clear the mobile phones can be a useful tool for creating user generated content. The minimovies exhibited strong social aspects, which may be emphasized in terms of the particular study participants (10-18 year old girls). This paper contributes a better understanding of how mobile phone cameras/videos are being used by teenagers and also provides a female perspective on technology use. As a future work, the authors aim to do a comparative study with a different user group, as well as to look at the mobile video creation in everyday life settings.

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