

The phone as a tool for combining online and offline social activity – teenagers' phone access to an online community

Abstract. We have analyzed two months of log data and 100 surveys on the phone use of a Swedish online community for teenagers to investigate the mobile use of an established online service. This shows that the phone use mostly takes place during times of the day when teenagers have social time and the use is not influenced by the availability of a computer. The phone makes the community access more private compared to the computer, but teens do share the use when they want to. The cell phone bridges the online and offline social communities and allows teens to participate in both at the same time. The online community is not only a place for social activity online, it is also a social activity offline that is carried out face-to-face with friends. The cell phone thus was a tool for the teens to combine their participation in the online and the offline world.

Keywords: Internet use, cell phones, log data, online community, rhythm.

Introduction

Teenagers have often been early adopters of mobile technology, and many research studies have focused on their use of voice calls and text messaging, for example (Grinter & Eldridge, 2001; Weilenmann & Larsson, 2001). The mobile phone has been shown to support teenagers' privacy (Ling & Yttri, 2005) and to provide a means for absent teens to participate in social gatherings with friends (Ito & Okabe, 2003). We intend to complement this body of research on teenagers' cell phone use with our study of their mobile use of an online community. The purpose of this work is to inform design of future mobile services through the study of a large user population and a frequently used service.

We have studied the mobile use of Playahead, an online community for Swedish teenagers. Playahead was chosen since it was an established community that had provided mobile access for more than five years and thus had a large community of experienced mobile users. Two months of log data was analysed with regard to the use rhythm; and 100 surveys were collected to gather information on use situations.

The use rhythm served as a foundation for exploring the relationship between Internet access from cell phones and location, computer access, and privacy. Here, the rhythm of user actions not only reveals the temporal pattern of teenagers' Playahead use, but also informs us on their social and spatial context.

Our findings from log data show that the cell phone use rhythm reflected the day with low activity during the night, a rise in the morning and during the day, and a distinct peak in the evening. Week days and weekends

differed from each other. Surveys show that Playahead users often accessed Playahead from the phone together with friends. The cell phone allowed them to participate and be active at an online third place at the same time as they were active in an offline third place. Thus, accessing Playahead from the cell phone was not only a way to get access to the online third place, it was also a social activity carried out face-to-face with friends.

Playahead

Playahead was an online community with mostly teenagers as users. The community was available as a regular web page and as a small Java application for cell phones. We chose Playahead for this study since its mobile solution supported most phone models available at the time of the data collection and thus made it available for its whole user population. The other large online community for Swedish teenagers at the time, Lunarstorm, had less support for the variety of phones and was therefore not included in the study. Facebook was not considered for this study since it was a small community in Sweden 2008, when the data collection started.



Figure 1: Screenshot of a personal profile for the desktop web page of Playahead.

The regular web site provided standard functionality such as personal presentation, guestbook, buddy list, search functions, discussion forums, blogs, and chat rooms (see figure 1). Users could upload photos and videos to their profile and even add background music. They could also post short messages that were displayed to all logged in users as small banners at the top of the site. Awareness support was provided such as lists of logged in users that could be filtered, highlighting of logged in friends in the buddy list, and indications on users that were logged in from

cell phones. It was even possible to see what other logged in members were doing. By putting the mouse over their user name a pop up message would reveal what they were doing, for example “xyz is reading her guest book”.

The mobile application provided a subset of the web site functionality: a personal presentation, guestbook, messaging, buddy list, and a search function (see figure 2). Users could read and post to guest books, chat, and look at profiles but not edit their own profile from the cell phone. Data intensive features such as photo albums and video clips were not available through the phone client. The phone application provided audio notification when messages arrived if users were logged in.

The web based site was founded 1998 in Helsingborg, Sweden, and rapidly became very popular. Playahead got its primary revenues through advertisement on the site. Basic membership was free, though different add-ons were sold, so called VIP-membership.



Figure 2: Screen shots of a Playahead guest book (left) and a chat room for a phone (right).

Related Work

Teenagers' cell phone use has been the focus of many research studies, for example (Boase & Kobayashi, 2008; Grinter & Eldridge, 2001, 2003;

Jung, Persson, & Blom, 2005; Kasesniemi & Rautiainen, 2002; Ling & Yttri, 2005; Miyaki, 2005; Weilenmann & Larsson, 2001). The mobile phone has been shown to give teens privacy by allowing them to communicate with friends without having to go through parents and the family landline (Ito & Okabe, 2003) as well as a possibility to get around family rules by communicate with friends in secret after bed time (Ling & Yttri, 2005). Weilenmann & Larsson showed that teens' phone use is highly social and that phones are shared (2001). Text messaging allows absent teens to participate in social gatherings with friends, called augmented flesh meets (Ito & Okabe, 2003). Our study adds to this research body on teenagers' cell phone use by investigating their mobile use of a social networking site. Teenagers are frequent users of social networking sites (Husson, 2007) but little is known about their mobile use of such sites. We believe this could also contribute to the general research body on social networking sites which has mostly focused on adult users and stationary use settings (e.g. Burke, Kraut, & Marlow, 2011; DiMicco, et al., 2008; Joinson, 2008; Lampe, Ellison, & Steinfield, 2008; Semaan & Mark, 2012; Zhao & Rosson, 2009).

The cell phone penetration in Sweden is very high, with 96% of the population having a cell phone (.SE Internetstatistik, 2009). In the age group 9-14, 95% has a cell phone, and in the age group 15-24, 100% has one (.SE Internetstatistik, 2009). However, Internet access from cell phones is not as pervasive as cell phones themselves. Only 36% of the cell phone owners (all age groups) used their phone for Internet access in 2011 (Findahl, 2011). Contrary to the use of text messages, where Swedish teenagers were early adopters and still is one of the most active user groups, Internet from the cell phone was not immediately embraced by the teenagers to the same extent as text messaging. Among teenagers, less than 10% used their phone for Internet in 2010 (Findahl, 2010) which was slightly after this data was collected. This can be compared to the fact that more than 75% of the Swedish teenagers send text messages daily (Findahl, 2009). Thus, teenagers' phone internet use merits more attention to explore what is behind these differences.

It has been argued that third places, places outside home and work where people meet and socialize such as cafés and bars, can exist online (Steinkuehler & Williams, 2006). Third places were described by Oldenburg (Oldenburg, 1997) who defined eight criteria for them:

- neutral ground - people are allowed to come and go as they please to a third place, no invitation is required,
- leveller – people's outside social or professional status is of no importance in the third place,
- conversation is the main activity in the third place,

- accessibility - friends or acquaintances can always be found in the third place,
- regulars – the third place have regular visitors that contribute to the ambiance,
- low profile – the physical space is not the focus of attention, usually a third place does not have spectacular decoration but rather a worn down profile,
- playful mood – most conversation concern light topics and other activities are for entertainment,
- home away from home – third places provide a home away from home.

These criteria from Oldenberg were defined before social networking sites became a strong influence in our daily lives. In addition, maybe these criteria to some extent reflect a nostalgic view of past times, where people lived in small communities and gathered at the local café or pub in the evening. A local café would indeed provide neutral ground, where the main activity is conversation, there are regular guests, and the mood is playful. It would probably also have a low profile and provide a home away from home. However, even if anyone were allowed to come and go as they please, it seems a bit utopian to believe that social or professional status were completely irrelevant even in such a setting (at any point in history), and most cafés have opening hours that restricts the accessibility of “always” finding friends or acquaintances there. For teenagers, other typical third places would be parts of school where after school activities takes place or community centres rather than bars.

Many online worlds and communities do fulfil some of these criteria, and sometimes even better than traditional, physical third places. For teenagers, online third places might be more accessible than physical ones since teens often are required to be home at certain hours and in general have parental restrictions on their whereabouts. Playahead and other online communities can offer available friends or acquaintances at any time of the day since they usually draw participants from a much wider area than local physical communities and are open 24/7, and the communication or other traces of participants are persistent so that people who log in can see what has happened when they were offline. A vivid conversation can take place even if all participants are not logged in at the same time. This persistence also gives regulars even more opportunities to put their mark on the place. Thus online communities as third places can be said to have higher accessibility than physical third places.

When it comes to social and professional status, online communities are not a better leveller than physical third places. In its infancy, the Internet was said to treat everyone equal and provide a place where social status was not important. However, this has changed since Internet now is a tool for building reputation, marketing, and many other purposes. The ability to post pictures and video clips means that we online are judged not only by what we say but as much by our appearance and image, much as in the

physical world. Moreover, online communities might offer their participants more freedom in presenting themselves, and sometimes deceiving their online surrounding. People do lie online (Hancock, Toma, & Ellison, 2007) just as they do offline, but as online and offline networks become more and more overlapping the risk of lies getting exposed increases.

Online communities also deviate from the definition of physical third places on some points. For example they cannot offer a home away from home in a physical sense, only a mental refuge which might be important in many cases. Moreover, Steinkuehler & Williams (Steinkuehler & Williams, 2006) have shown that online games to a large extent fulfil the criteria of third places but deviates heavily in their visual profile. There is nothing low profile in the design of many online game worlds.

Method

We have mined log data of the mobile use of a teenage online community in this study. This gives us the opportunity to study a large user population and see stable patterns in the use. However, logs give no information about users' motivation for using a service, how they experience it, or what benefits they get out of using it. To complement log data with some subjective and contextual information we conducted a survey.

Users

Playahead users were predominantly in their lower teens, 78.5% aged 13-16, 15.7% aged 17-19, and 5.5% older than 20. The gender distribution is fairly even with 52% female users and 48% male users on the web site. This gender distribution was supported by our logs from the mobile use where 51.9% of the users were female and 48.1% male.

Data

Playahead provided us with two months of log data of the mobile use of the site, September 2008 and January 2009. The material contained more than 13 million user actions on the mobile site generated by more than 10000 unique users (Playahead has asked us not to disclose exact numbers). We also received profile data for the users of the mobile site. The logs contained time stamp, user id, and activity name. User profiles contained user id, age, gender, place of residence, and number of friends. We did not get users' profile names which meant that the authors could not match log data to actual users or any other information users chose to add to their profile such as pictures or presentation text.

The material contained 23 different logged activities in the September log, and 28 activities in the January log. Only the 23 activities present in both data sets were considered for this paper of which two activities were triggered by the system. This left more than ten million logged instances

for analysis. Figure 3 shows the use frequency of the 21 user triggered activities.

The activity generated by automatic test users used by the support staff was discarded to avoid bias in the analysis.

We did not receive log data for the activity on the regular Playahead web page and will therefore not be able to compare the user activities of the web with those of the mobile client here. Moreover, our data did not contain the “content” of user actions such as the text of their messages, and not the recipients. Finally, we do not have any information about the cell phone models of users so we cannot draw any conclusions about how their phones might have affected their behaviour.

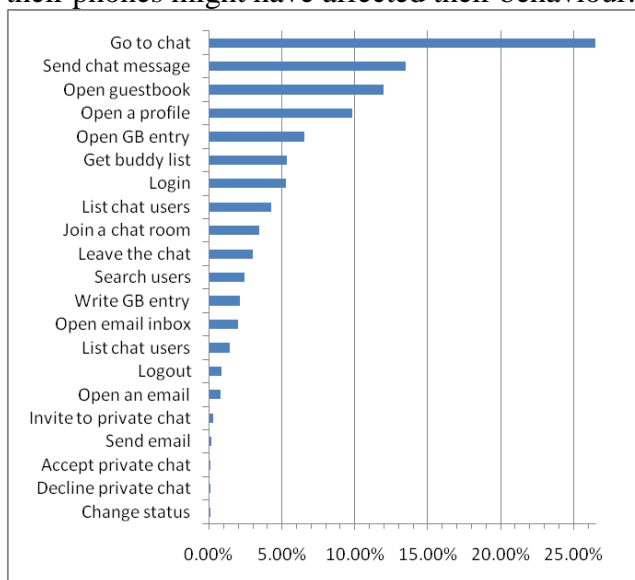


Figure 3. Activity frequencies for user triggered activities.

Survey

An online survey was distributed to complement the logs with some user data. Mobile users were contacted through the internal email on the Playahead web site and received a link to the survey. 100 users took the survey, 60% females and 40% males with the average age 15 (min 11, max 24).

The questions in the survey covered location, computer access, to what extent users access Playahead together with friends, and what type of cell phone subscription users had.

Analysis of log data

Rhythm of the Phone Use

The concept of rhythm has previously been used both to understand user needs and as a basis for system design since it provides information on social practice, routines, and context. For example, Reddy & Dourish (2002) showed that the different work rhythms in a hospital supported the staff in finding the information they needed, Johnson-Lenz & Johnson-Lenz (1991) used the various rhythms of a group to inform design of groupware, while Begole et al. (2003) used the work rhythm of workers to predict their availability to remote colleagues. Here, the mobile use rhythm of Playahead will serve as a tool to characterise the use and inform us about use context.

The daily rhythm of the mobile use of Playahead has been calculated for the total number of user actions. Figure 4 shows the percentage of activity that took place during each hour of the day, e.g. 6.2% of all the user actions in our log material took place between 12am and 1am on weekdays. The daily rhythm is computed from user actions only.

Automatic system updates were removed since we wanted to know when users actually interacted with Playahead using their phones.

The general rhythm of the user action maps well to the daily social rhythm with low activity during the night, a rise in activity in the morning, stable activity during the day, a slight increase in the late afternoon and early evening, and a peak in the late evening. This is similar to the message rhythm of the DeDe (Jung, et al., 2005) system, which is interesting even though their user group was much smaller than ours. Since our log material only contains user activity from cell phones and not the regular web site, we were surprised to see that the rhythm did not reflect the time of day when users lacked access to a computer. To investigate this further we split the data into logs for week days and logs for weekends.

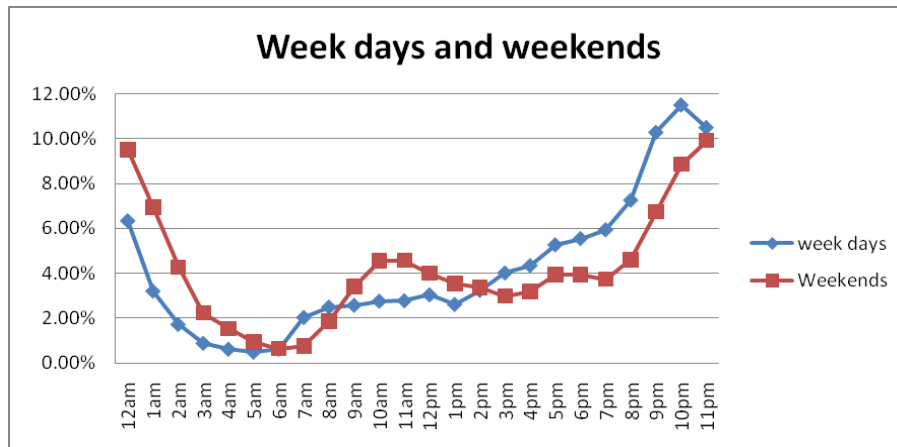


Figure 4. User activity on week days and weekends.

The Rhythm of Weekends and Week days

In separating the data in logs from weekends and logs from week days, we removed a few week days in the beginning of January since they were school holidays for some parts of Sweden and regular school days for other parts. To be sure that all weekdays in the material were school days, weekdays between 1 and 12 January were removed. Weekends and bank holidays during that period were kept. This left us with data from 37 week days and 19 weekend days or holidays in total.

In figure 4, we can see that the rhythm of the user activity of weekends is similar to that of the week day activity. However, the graphs are slightly shifted in time. In weekends, user activity started later in the morning, the evening rise of activity started later, and the evening peak occurred later. This is easily explained by teenagers, as well as adults, getting up later in the morning and going to bed later in the evening in weekends than in week days.

The weekends show higher activity during the morning and mid-day, when teenagers have fewer restrictions in their activities compared to school days. Moreover, the evening activity starts earlier on weekdays, probably due to an increased social activity after the school day.

The morning rise could be due to travel to school and work, using Playahead from the phone to kill time, but a large part of the evening peak probably took place at home. The rhythm can be interpreted as if Playahead users did not only use their cell phones to access the community in situations where they had no access computers available. This will be further elaborated on below.

Analysis of survey data

The rhythm of the mobile use provides a good start for a discussion about where users were and if they had computer access when they logged into Playahead from the phone. Since the log data does not give any indications about that, we used the survey to inform our analysis.

Location for the Phone Use

In the survey we asked in what locations respondents used Playahead from the cell phone.

Location	
Public transportation	81%
School	79%
Outdoors	76%
Home	66%
At friends	55%
On vacation	36%
Other	13%

Table 1. Locations for Playahead use (multiple answers per respondent allowed).

Table 1 shows the survey result for locations. Two of the top locations, *public transportation* (81%) and *outdoors* (76%), can be considered as traditional contexts for using cell phones for access. *In school* (79%), teenagers had access to computers but limited possibilities to use them for private purposes such as Playahead which made it natural for them to use the phone for access. On the fourth place, 66% responded that they used the phone to access Playahead when they were *at home*. We believe that this number could be considered as a conservative estimate since people often are not aware that they use their phone for Internet at home or in other situations where they have computer access (Nylander, Lundquist, & Brännström, 2009).

Using mobile devices to access the Internet or watch media content at home is not uncommon, as shown by Nylander et al. (2009) and O'Hara et al. (2007) respectively. Nylander et al. found that their participants often found it easier and quicker to use the cell phone to check email or news even when they were at home and had a computer available. They usually had the phone nearby, it was always connected, and frequently had bookmarks and shortcuts that took them to the preferred content with a single click. O'Hara et al. found that the mobile device made it possible for users to watch video and still participate in the social situations at home, for example when younger siblings were watching TV. In the same way, we believe that the cell phone allows teenagers to keep track of what

is going on at Playahead and still participate in family activities at home or activities with friends.

The rhythm diagrams provide support to the survey data on cell phone access to Playahead at home by showing that a large part of the user activity takes place in the evening. In weekdays, the activity peaked between 10pm and 11pm, and in weekends it peaked between midnight and 1am. This can be interpreted as if a lot of cell phone use of Playahead took place at home, since 78% of the users are younger than 16 and can be expected to be at home after 10pm on a school night.

The use of the cell phone in the home, as described in previous work and suggested by our data, shows that the phone is not only a complement to the computer that is used in situations without computer access. Rather, the phone opens up new possibilities and new forms of use. We will elaborate on this in the following sections on computer access and privacy.

Computer Access and Phone Use

Since we have good reason to believe that a substantial part of the cell phone use of Playahead took place at home, and a majority of Swedish teenagers have Internet access at home with 61% of the 9-16 year-olds having their own computer in their room (Medierådet, 2010), we found it interesting to investigate the relationship between cell phone use and computer access through the survey. Among our survey respondents, 98% had access to a networked computer at home, and 60% had their own computer.

Reason for not choosing the computer	
Someone else using the computer	61%
Too lazy to start the computer	53%
Cell phone was closer	46%
Always use the computer	19%
No one can watch me on the phone	15%
Not allowed to use PA, phone gets around that	6%
Other	5%

Table 2. Reasons for choosing the phone to access Playahead when a computer is available (multiple answers allowed).

In the survey we asked in what situations respondents chose the phone for accessing Playahead even though they had access to a computer. Table 2 shows the results. The top reason was *someone else was using the computer* (61%), which means that in practice they did not have the possibility to choose the computer as device of access. The two following reasons are connected to convenience, *too lazy to turn the computer on* (53%), and *the phone was closer* (46%). Comments in the survey

emphasized that respondents wanted continuous access to Playahead and that they phone suited their purposes for this.

“I’m really addicted to Playahead in the phone, you can’t really carry a computer around all day, right?” (survey comment)

This shows quite clearly that teenagers did not resort to the phone for accessing Playahead only when they had no other option. To them, the phone was one way of accessing their community with advantages and disadvantages just as any other way. The phone had its own role in the use of Playahead and was not a backup solution for the computer. This is in line with previous research on adult users’ web access from phones. (Nylander, Lundquist, & Brännström, 2009) showed that the phone was often chosen over a computer since it was a quick and simple way to get online being always on and usually kept nearby.

One factor in this could be the payment models for internet use on the phone. Ninety-eight percent of the survey respondent reported having free internet access on their phones, which mean that cost was not an issue when choosing the phone. Moreover, in the case of teenagers and Playahead the phone also offers a degree of privacy that the computer cannot give. It is easy to hide a phone, and from the survey results it seemed like the phone was not subject to parental control to the same extent as computers. This will be discussed further in the next section.

Privacy

It is more private to use a service on the phone compared to the computer in general. The phone is personal to a higher degree than a computer, and not many Swedish teenagers share their phone with other family members. Moreover, the screen size of the phone makes it difficult for bystanders to see what is going on and it is fairly easy to conceal a phone. In our survey, 15% of the respondents report that they sometimes used the phone when they had computer access because no one could see what they were doing. The cell phone can also offer a degree of secrecy, in that teenagers can use services on the phone that parents do not allow them to use on the computer. In the survey, 6% report that they were not allowed to use Playahead but with the phone they could get around those restrictions. One respondent claimed that he really liked to use Playahead from the phone because his parents did not allow him to use it. Since he had free Internet access on his phone, they did not notice.

“I like PA in the phone, especially when I’m not allowed to use it at home, and it’s free, so my parents don’t notice that I’ve used it.” (survey comment)

These survey results, in combination with the log data which show that Playahead was used a lot in late evenings, suggest that the cell phone offers more privacy, and sometimes even secrecy, than the computer.

Ling & Yttri (2005) and Grinter & Eldridge (2001) studied Norwegian and British teens respectively, and found that the teenagers created extra time to talk on the phone or send text messages to friends by using the cell phone in bed after bed time without their parents' knowledge. Our data show that online communities are used for the same purposes. The fact that a majority of our respondents had free internet access on their phone subscriptions helped to conceal their use of Playahead, since ever so frequent use would not influence the cost and thus not draw parental attention.

An online third place and and offline social activity

Our results confirm that participants did not only access Playahead when they were with friends, they were sharing Playahead with their friends. In the survey, 25% responded they often invite their friends to look at Playahead on the cell phone together with them, and 50% responded they sometimes do this. This adds to previous research on other types of cell phone applications where Weilenmann & Larsson (2001) have shown the highly social use of text messaging among Swedish teenagers, who often looked at each other's phones, composed messages together and even borrowed each other's phones to send messages. Olsson et al. (2008) found similar behaviour for pictures taken with cell phones. In our survey, 32% responded that they sometimes borrowed a friend's phone to access Playahead. The cell phone is a personal device in the sense that most Swedish teenagers have their own phone, but sharing of the phone is common in the situation of the use.

Playahead fills many of the criteria for third places, as many online communities do. For example, it is clear from the user actions (see figure 3) that the main activity on Playahead is conversation in different forms. Phone access might even be more centred on conversation since the regular web page offers other, non-conversational activities such as photo albums, radio channels and games which are not present in the phone user interface. The activities on Playahead are continually ongoing, which is a strong motivation for users to come back. Something new could happen anytime, which means that it can be worth logging in again even if the last login was only minutes ago (Nylander, Lundquist, Brännström, & Karlson, 2009).

Online and offline third places are not separated from each other. Castronova (2005) argued that actions in virtual worlds such as massively multiplayer online games are connected to the real world and affect it for example economically through the sale of virtual objects and avatars. In the case of Playahead, it is easy to see actions in the online community causing social effects in the real world. Even though users might not have their full name as user names, they mostly act as themselves in the community and often interact with people they frequently see in real life.

Writing interesting gossip online will most certainly spark offline discussions and misunderstandings or offending comments will affect offline relationships. As the events go on in parallel in the online and offline world, none of them taking a break when users check in to the other, teenagers try to combine them. The cell phone becomes a tool for participating in the online and offline world at the same time. This has strong support from the use rhythm, which shows that online conversation happens in the parts of the day where offline conversation is likely to occur.

Seeing Playahead both as a place and an activity makes the parallelism easier to handle. The use rhythm described above shows that participants often accessed Playahead during times of day when it is likely that they were together with friends or family. The survey results confirm this: 31% respondents often used Playahead when they were with friends and 64% sometimes used Playahead with friends. This leads us to believe that Playahead is not only a third place, a place for socializing; its mobile use is also a social activity that teenagers do when they meet face-to-face. Comments from the survey respondents support this. For example, one respondent reported that she used the phone to stay in constant contact with people logged into the phone chat rooms.

*“I’m in to stay in contact with the people logged into the chat rooms”
(survey comment)*

The fact that Playahead is not only an online place for social activity but a social activity among friends that meet face-to-face suggests a strong connection between the online and offline activity.

Discussion

Playahead offers an online third place where teens can socialize with in real life friends and online friends. The activity on Playahead is parallel to the activity in offline third places, and the cell phone offers a means to combine online and offline. The cell phone also turns Playahead into an activity in offline third places, something friends do together when they meet.

The possibility to combine online and offline third places of course has both pros and cons. The online world can enrich the offline world by allowing teenagers to keep a large circle of friends and by bridging the limits of time and distance. However, the asymmetry in social norms between online third places and offline third places can be problematic. People are often less inhibited online, thus online actions can cause conflicts or bad feelings that would not occur in offline interaction and that can be difficult to handle. If someone gets offended online, it is easier to be rude in return online, than demanding an apology in a face-to-face

situation. The combination of online and offline third places could also create more social control and provide an efficient area for bullying. As in other third places, the main activity on Playahead is conversation, even though it is a text-based conversation and in our case mediated by the cell phone. We believe that teenagers' experience from text messaging help them make an easy transition to a service such as Playahead. They are very experienced texters, we already know that a majority of Swedish teenagers send text messages daily, and to them Playahead is a natural extension to text messaging. This is well reflected in our material. However, in the Playahead data we not only see the asynchronous text communication, at Playahead represented by the guestbook entries and the email messages, but also synchronous communication in the chat rooms. Sending a chat message from the phone was the second most common user action and constituted 13.46% of the total user activity. Obviously, the teens felt comfortable enough with text input to use it in a real time chat that is more time critic than the traditional phone text messages. Almost a third of the users, 29.8%, had sent at least one chat message. Writing in the guestbook was only number twelve in the list of user actions and constituted 2.14% of the total user actions. This still meant that more than 100.000 guestbook entries were written during our data collection period and 49.2% of the phone users wrote at least one entry. We conclude that the Swedish teenage user group has no problem with text input on cell phones, and that even such input heavy functionality such as real-time chat works fine on cell phones for them. This is interesting since recent results reveal input as an important source for frustration for information workers with high end smart phones (Karlson, et al., 2010). Input is considered differently in various user groups. One reason for the large amount of text communication on Playahead could be that a majority of our survey respondents reported having cell phone subscriptions where the Internet use is free. In the survey, 98% reported that their Internet use on the phone was free. This means that chat messages and guestbook entries could be a way to communicate with friends without charge, since most subscriptions charge for text messages (though, in Sweden only the sender is charged, not the recipient). Mobile devices have not only made it possible to access the Internet in places previously inaccessible by computers, they have made Internet more convenient and private (Nylander, Lundquist, & Brännström, 2009) and provided a tool to better combine online and offline worlds. Payment models are important factors for user behavior and could be one reason for the slow uptake of mobile internet use among Swedish teenagers and why it is no on the rise. Today, most phone subscriptions offer variations of flat rate on data traffic which means that the cost is predictable. The switch in payment models from paying for the amount of

transferred data, to a flat rate has made it much easier for users to predict their phone costs, and thus for parents to control their teenagers phone costs. It is likely that more teenagers have got internet access from their phones through this.

Design Implications

A number of design implications for the mobile phone use of social networking sites can be derived from the analysis of log data and survey data presented above.

First, the use of a mobile device does not necessarily imply a mobile situation of use in the traditional sense where users are on the move, have their attention directed to their environment, their hands occupied etc. (Gorlenko & Merrick, 2003). Moreover, our data show that the cell phone is used in social situations, together with friends or in school which are not typical situations for mobile use. This means that the phone is often used in settings where the phone applications have the user's full attention and the user can focus on the application for longer stretches of time. It is highly possible to design for stationary use on the phone.

Second, and related, our results make it clear that the phone is not a backup solution for situations when users have no computer access. The phone is a device that is preferred in many situations, for example since it is more discrete than a computer. We therefore believe that online communities for mobile phone access should not be designed with the bare minimum of functionality to achieve easy navigation or a thin client. The full capability of the device should be explored, and as much desktop functionality as possible should be offered from the mobile terminals to give users the best possible experience. This is even truer now than when our data was collected, since the capabilities of handsets have only increased since.

Third, we found that Playahead is something teenagers do together face-to-face. We believe that social networking sites should be designed to support shared and collaborative use in the offline world. This could be achieved by allowing for easy switching between user accounts to make it possible to show friends what is going on in a quick way, or even allowing for a shared user interface where more than one user is logged in at a time. Group functions such as the ability to create flexible chat sessions for present and absent friends would also support the offline activity of sharing a social network site with friends.

Conclusions

We have analyzed log data and surveys of how Playahead, a Swedish online community for teenagers, is used from cell phones.

The use rhythm follows the daily rhythm of life showing little activity during nights, a slight increase in the morning, stable activity during the day, a rise in the afternoon and a strong peak in the evening. This suggests that the choice of a cell phone as access device was not a function of computer access or mobility. Rather, the phone was considered an access device as many others and was chosen for its advantages such as easy access, and increased privacy.

Moreover, the phone allowed teens to be active on Playahead together with friends they were meeting face-to-face. Social activity is constantly ongoing in online communities and social networking sites, which means that there is no dedicated time for strictly online or strictly offline activity. The two worlds carry on in parallel and the phone made it possible for the teens to combine activities in the two worlds, socializing online and offline at the same time.

Even though we only have data from a subgroup of cell phone internet users and from one single service the data give indications of use patterns and pointers to future design. We have outlined three guidelines for the future design of phone access to social networking sites: design for a richer and more varied use situation than the traditional mobile use setting, do not strip functionality to the bare minimum on the phone, and create features that support face-to-face sharing and group interaction when using the service.

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