Giving Serendipity a Nudge by Sharing Everyday Mobile Content

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ABSTRACT

This paper examines the capturing and sharing of digital images in everyday life. We find that this practice not only gives serendipity a nudge by allowing groups to come together more easily, it provides contextual information that can reduce gratuitous contact. In order to demonstrate this we will reference the Swarm phone prototype and describe how the pre-defined, color coded avatars in the latest version are being given greater context and personalization through the use of everyday digital images.

Author Keywords
Mobile phones, digital images, virtual presence.

1. INTRODUCTION

A key theme to emerge from a three year empirical study of 35 mobile phone users, aged 18-35, living in Melbourne, Australia, is that mobile phone ownership goes hand-in-hand with the need to regularly update others of one's actions through the capturing and circulation of experiences [8]. Twenty six of the 35 participants in the open ended interview study reported that an event is not complete until it is shared digitally through text, voice or more recently, images [9]. Furthermore, 20 users revealed there were times when they were exchanging messages so frequently with close friends they were providing each other with continual updates of their day-to-day activities. A user stated,

> I am constantly in contact with colleagues and friends (via voice, SMS and MMS). I am always able to be part of the loop in all aspects of my life. But I also have the power to choose who I want in my world … the digital world helps me control the real world.

In keeping with prior research [7] [5] [11] it could be seen that what was being created was a new paradigm of interaction amongst peer networks, where the boundaries of real and virtual worlds were blurred, giving way to a sense of constant connectivity.

It is significant that the nature of these exchanges was such that they did not necessarily require a reply; rather, the users in the study were occupying the digital space on each other's mobile phone interfaces in order to increase intimacy. Ito and Okabe use the term 'ambient virtual co-presence' to explain this practice [7], while Spasojevic [10] and Van House & Davis [12] found that mobile facilitated image capturing and sharing enhances a sense of community amongst members of peer groups.

Although connectivity and the consequent sharing of experiences provided the users in the study with a sense of reassurance within their social networks; this practice generated new problems. Twenty-six participants reported that they struggled to maintain the balance between the need for connectivity and the desire to be at times, uncontactable. These users resented the incursion the artifact brought into their lives. The most common example of this was incoming phone calls, however, even asynchronous communications such as text and multi-media messages could be intrusive as they generally required some sort of response. The study indicated that although users wanted to maintain a virtual presence in each others lives, paradoxically; they desired a way to exert more control over their mobile connectivity, ideally, by reducing unnecessary contact.

Thirty-five technologically competent users, 18-30 years old, living in Melbourne, Australia participated in the empirical user study (see chapter 4). The method of the open-ended interview (Minichello, Aroni, Timewell, and Alexander (1995) was used to conduct the study and grounded theory (Strauss and Corbin, 1990) was used to analyze the data. The results of the user study are presented in chapter 5.

2. THE INITIAL PROTOTYPES

A major challenge in developing the prototypes, called 'the Swarm' was facilitating presence, "our subjective sense of social others whilst we are separated from them by time or space" [3], while at the same time, reducing unnecessary interactions. To meet this need, the Swarm provides a series of avatars that act as digital representations of the user. The avatars depict the user's current activity and can be programmed to appear on the user's friends' mobile phone. As the activity changes, the avatars can be updated accordingly. This allows individuals to see at glance what the other members of their friendships network are doing at any particular

time. By providing users with this contextual information about what other members of their social group are doing, presence and intimacy are maintained. In turn, this allows users to draw on their sense of social and cultural etiquette and depending on the nature of the activity, decide if they should contact each other or not. This is similar to chat in that users can represent themselves by an icon, although, unlike chat, which originally rests on the assumption that the user is bound to their PC, the Swarm is specifically for a mobile artifact meaning the user, can indeed, be anywhere.

3.   SCENARIOS AS CULTURAL PROBES

As a precursor to the development of the psychical prototypes, a scenario of the Swarm [9] was used as form of cultural probe [4] to further uncover young peoples' needs in social environments. It was hoped that the narrative conveyed through the Swarm scenario would provide users with an additional way of reflecting upon their own practices of use. They could, for example, recognize and confirm their own behavior, distance themselves from what was portrayed, or re-write the scenario in new and unexpected ways. Moreover, the use of the scenario as a cultural probe could augment the open-ended interviews by testing the validity of the initial findings from the interviews, fill in any gaps in the research and, perhaps, generate new insights.

The cultural probe kits simply consisted of the scenario printed on a piece of paper. They were left with the participants who were instructed to comment on, or even re-write the scenario. They produced a high level of user feedback, providing not only a means for the users to reflect further upon their own use, but also, the opportunity to suggest potential additions. Five of the seven users provided detailed analyses of how or why the proposed scenario would or would not benefit them and three made extensive changes.

The most significant finding to emerge from this round of user testing was that although the use of highly contextualized avatars was seen by all the participants to be a positive addition, they introduced a new set of problems. Users could now see what their friends were doing and in turn, convey what activity they were currently engaged in, yet this did not necessarily mean they wanted to convey the same message to all the people in their contact list. A user noted,

> I like this idea of using an avatar, I like it a lot, but I just realized - you could never just use the same one for every caller. That's what's wrong with this design.

This was noted by Andersen et al [1]. In order to solve this issue, the Swarm was modified so that the avatars could allow for the simultaneous expression of multiple activities to different groups or individuals.

4.   COLOR CODED AVATAR PROTOTYPE

The initial Swarm prototypes were developed with avatars that were icon based. For example, being 'at the beach' was represented by an avatar of a person in a bathing suit, however, the multitude of different icons looked cluttered and messy on the small real-estate display of a mobile device. An alternative solution was needed. A cleaner interface was achieved through the use of color coded icons.

Figure 1 shows the main screen of the color coded Swarm phone prototype. The main avatar represents the user.   The horizontal color bars show the different modes of   representation the user can simultaneously convey. Clicking on a color bar reveals which of the user's contacts sees the person in that particular mode. For example, in figure 2, the user is currently indicating 'social mode' to Ben, Darren and Vicki. The color bars remain visible along the left hand side of the screen and double as a pH tester for presence so the user can see as at a glance what each color represents.

The smaller colored avatars at the bottom of the screen (figure 1) display what the user's friends are doing now. Again, the color bars double as a pH tester for presence. For example, Kym's avatar is blue; this corresponds to the blue color bar labeled 'sleep'. Thus, it can be deduced that Kym is asleep. More detailed information about what the user's contacts are doing is reveled when these avatars are clicked on (see figure 3).

Figure 1: Main Screen – What are my friends doing now?

Although more research is needed, early testing of the design indicated that users would quickly come to associate a color with a specific activity. As one participant noted, color associations are quite powerful.

I think that I would quickly come to recognize which color represented which activity. After all, that is the main way I browse through my record collection. I know that the blue CD spine is the Nirvana album.

Figure 2: Keeping track of what I am revealing to others

5.   CONTEXTUALSING WITH ICONS

The use of color coded avatars represented a significant challenge in regards to how the Swarm might provide users with the ability to personalize their digital identity. For users to be able to associate 'color' with 'activity' there had to be continuity in that the device would not work if one person's pink avatar meant 'leisure mode', while another person's pink avatar meant 'at work'. To overcome this problem, pre-defined colored avatars were necessary. This was problematic because the idea of pre-programmed avatars went against the findings of the user study which revealed a culture of use where re-contextualization and personalization is paramount. Twenty nine users noted that it is not until the mobile phone looses its pre-programmed identity that it becomes desirable. They expressed the desire to impose their own modifications onto their mobile technology and a design challenge was how the Swarm could provide users with the freedom to personalize their digital identity by creating their own categories of representation.

In order to achieve this, the pre-defined avatar categories were kept generic, for example, 'at work', or 'socializing'. Users could then add their own layers of meaning by embedding one of the colored avatars with icons or messages of their choice. For example, as can be seen in figure 1, Ben and Darren's orange 'social' avatars are embedded with a Martini glass indicating

they are 'out on the town'. While Linn's pink 'leisure mode' avatar is embedded with a heart, indicating that she is on a date. This represents an extra degree of user programming that requires more work and some users may never venture beyond the predefined color coded categories. It does, however, provide the opportunity for greater involvement should the user so desire.

6.   CONTEXTUALISING WITH USER PRODUCED CONTENT

Although the use of icons provided users with more autonomy over the creation of their digital representations, there was still another need to be met. In the digital age of Myspace, personal blogs and flickr, a new generation of users seeks to reveal, rather than conceal their digital identity [9]. The result is that considerable effort is put into the creation of virtual representations [1]. As a user in the study stated, "The way in which I come across is really important to me. I don't want to be represented by some daggy font." For twenty four users in the study digital interactions and exchanges were enhanced when they became more dynamic, for example through the use of home produced content. [9]. As a user noted,

> I would rather send a picture though my phone of what I was doing to try and get my friends to join me than I would describe it in a text message. Or send a picture rather than a written description of my weekend.

On a practical level, it could be seen that sharing digital images potentially provided a quicker and more user friendly means of forming social networks than an SMS would. A user stated, "I find that the picture of a pot of beer sent to my mates at about 5pm on a Friday communicates volumes." This was in keeping with the research of Ito who noted, "Once the visual stream enters this shared virtual space, it can lessen the volume of text exchange" (p.3) [6].

To extend the degree of personalization and contextualization further than pre-fabricated icons, this version of the Swarm prototype is now being modified so that users can include their own content through the use of digital images they have taken themselves. This means users can add 'up to the minute pictures', creating a presence that reflects a continual digital representation of their real life. For example, in figure 3, it can be seen that Kim has a camera icon next to her name. This indicates she has chosen to augment her virtual presence with a digital image. When the camera icon is rolled over or clicked, the image opens up to full screen size (see figure 4). This provides additional visual cues as to Kim's current activity, which can, in turn, act as an incentive for those not present to join her, or allows for those who cannot be there to 'get the picture'.

Figure 3: Snap-shot of what all my contacts are doing now

7.   CONCLUSION

At this stage of the research, the prototypes are not implemented on a real technological platform. It is noted that this has a number of impacts on the findings and results and that long-term use and adaptation can be quite different from user's immediate opinions and feelings. Nevertheless, to date the research reported on in this paper finds that when members of a social group cannot be together physically, circulating a digitized account of an activity becomes an authentic way to share the experience. It can also aid in the formation of social networks and increase intimacy. However, the need to maintain a digital presence in each others lives can be problematic as users become overwhelmed with the constant interruptions mobile phones bring to everyday life. The Swarm prototypes aim to decrease gratuitous mobile interactions by providing contextualised information about the individual, thus, allowing social and cultural etiquette to dictate if interactions should take place. The specific colour coded prototype presented here utilizes the digital image capturing and sharing capabilities of camera phones to facilitate personalized, multi-media representations of the user. The next stage of the research will test and evaluate the effectiveness of using digital images to enhance virtual presence.

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Figure 4: Augmenting current activity with digital content

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