Socialising Across Channels: Group multichannel communication

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ABSTRACT
People increasingly communicate over multiple channels, such as SMS, email and IM. Choosing the channel for interaction is typically a considered action and shapes the message itself. In order to explore how people make sense of communication mediums and more generally, social group behaviour, we developed a multichannel communication prototype. Preliminary results indicate that multichannel communication was considered very useful in the group context even considering the increased quantity of messages while it was little used for person-to-person interaction.

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Multichannel communication, group social communication

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H.5.2 [Information Interfaces and Presentation]: User Interfaces — evaluation/methodology, prototyping, user-centered design; H.5.3 [Group and Organization Interfaces]: Computer-supported cooperative work

INTRODUCTION
Modes of communication have traditionally been segregated, with all parties required to use the same medium in order to share a message. As designers, we respect that the selection of medium is a thoughtful decision taken by people in order to maximize the effectiveness of their message and that the act of medium selection is in itself meaningful to others, and forms part of the message. For example, a text message may indicate urgency and immediacy, but a letter, thoughtful narrative.

The paper begins with an overview of the method and a review of different modes of communication, followed by an overview of the prototype system, evaluation, results and discussion.

METHOD
The focus of this paper is exploring how social groups, as opposed to individuals, communicate and share. In particular, we are interested in how such groups use technology to support 'hyper coordination' (Ling and Ytrri 1999). To this end, we created a prototype platform which facilitated multichannel group communication and invited our immediate friends from various different social groups to use it as they saw fit. Over a period of time we conducted a range of "mini-probes", with this paper focusing on the multichannel group communication aspect. After 15 weeks of usage by 65 participants (largely in the age range 19-25), we analysed how the system was being used on the basis of observations and logged data, as well as in-depth situated interviews with 11 participants. Interviewees were asked to evaluate the technology probe, and were also asked to discuss and dissect multiple pre-existing means of communication. Their comments are included in the review where useful or illustrative.

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MEANING IN THE MEDIUM
A medium is the method or technology through which interaction happens. Commonplace communication mediums are voice, SMS (Short Message Service) or 'text' on mobile phones, email and IM (Instant Messaging). The medium selected by the user, whilst not actually the message itself, has an integral role in the context and process of communication. This role is so pivotal that the line between message and medium often blurs. In such cases, to paraphrase McLunhan (1964), the medium *becomes* the message.

Communication typically involves a conscious decision of which medium to use. In many ways it is an optimisation problem: how to best express a message so that the receiver will construe the sender's intent. Many factors are involved in this process, belying the perceived simplistic nature of sending a message. For example, consider how one study participant, Fiona contacts a friend: "*during the day, I'll always email Therese because she's at work and reading email. During the evening I'll text her*". Fiona knows which communication mediums are available to herself and Therese, and what these mediums mean to both of them. She is also aware of Therese's current context when selecting the most appropriate medium. Overall, the method by which messages are sent is dependent on the interaction context, encompassing sender, receiver, message and intent. This is an example of what Suchman terms 'situated action' (1987).

Next is a discussion of three contemporarily popular communication mediums, identifying key differentiating properties and participants' subjective meanings for each. Such factors were considered in the development of our multichannel communication probe, and later revealed themselves to be important in its utility.

Instant Messaging

IM is informal, free, quick, direct, and can be used synchronously or asynchronously (Cameron and Webster 2005). Power can be symmetrical, in that the receiver can usually instantly identify the messenger, as well as ascertain the message content quickly or at once. This is different from a phone call where receivers typically do not know the particulars until the call is taken (Nardi, Whittaker et al. 2000). Infrequent or variable computer access means that IM may be unusable. As one participant noted of IM, "there is no point if people never log in". Such concerns can lead to peer pressure to use IM amongst teen social groups, as reported by Grinter and Palen (2002). Due to its lightweight manner, participants often use IM to "prod" friends, checking up on them and performing relationship maintenance. IM is also seen as a less disruptive medium, where you can "'interrupt [others] without interrupting them too much'" (Nardi, Whittaker et al. 2000).

Text Messaging

SMS is a service that was originally used for asynchronous mobile phone to mobile phone messaging, but is now being integrated in a wide variety of services such as polling, information delivery, notifications and group chat. Text messages are considered more private than telephone calls (Häkkilä and Chatfield 2005) and are especially popular with teenagers and young adults (Grinter and Eldridge 2001; Barkhuus 2005). Messages are typically delivered instantly, limited to plain text, and can only hold 160 characters (or additional charges result).

Considering the limited nature of the medium, it is interesting to examine why it is so popular. Interviewees spoke positively of the directness of SMS. They also found that it has "more of a hit ratio" than other mediums, as people usually carry their mobile phones turned on, and requires little effort to read a received message. Additionally, participants found their contacts' adoption of mobile phones was higher than the adoption of other technologies, making SMS a "lowest common denominator" medium.

However, because of its fast, direct and "interrupting" nature, many participants considered that SMS should be used only for urgent or important messages. Whilst SMS delivery itself is swift, many participants found entering messages via the mobile phone keypad tedious and slow. More adept users, however, reported texting in the midst of other activities, such as lectures. SMS's general covertness and visual rather than aural nature can appeal to teenagers wanting to avoid parental scrutiny (Grinter and Eldridge 2001). It can also be of use in environments where phone calls are unable to be heard. One participant, Sarah, who is a regular nightclub patron, reports that she and her fellow clubbers use SMS exclusively. Once an hour while dancing she will produce her phone to check for received messages, and take action when necessary. With missed phone calls however, Sarah cannot know what the call was about, and whether it is worthwhile to venture outside to return the call.

Email

Email is asynchronous, and like IM usually only available on computers. Participants generally thought of email as being for low-priority or non-timely messages. They also identified it as a less intrusive communication medium. Many email clients have a sophisticated text editor that permits easy revising for more refined prose. Revising so that, in the words of one participant, "I don't look like an idiot", which is particularly salient as email is regarded a persistent medium. People send emails with the knowledge they can be archived, searched and forwarded by others. Interviewees indicated they often reread old emails, looking up and confirming intricacies as they become more relevant.

Choosing Mediums

In the workplace there is evidence of a strong correlation between medium selection and the complexity of the desired interaction (Allen and Hauptman 1987). While complexity does have an effect for social interaction, our study suggests that other factors are more pertinent. The major factor participants considered when deciding which communication medium to use was the *immediacy* of the message. Message delivery, whether immediate or delayed, is reliant on the inherent speed of the medium (e.g. carrier pigeon versus SMS), and what the anticipated lag time is for a recipient to be aware of the new message (e.g. how often email is checked). Messages will migrate to new mediums when urgency is increased. For example, email invitations to a party may be sent a month in advance, whilst SMS will be utilised as a reminder on the day of the party.

Also important, as mentioned explicitly by a few participants, is whether a medium is available between different people. For example, if a group member wishes to contact their entire group, including fringe members, a complete set of contact details might not be available to them. Two participants described the scenario whereby they had mobile phone numbers and email addresses for some people, but for others only email. As a result of this they felt limited when trying to send a bulk message to their group (Figure 1).

Figure 1 Deciding which channel to use requires consideration as to what is available and also what is preferable given the context.

Depending on the message, persistence was also important. Messages of only ephemeral value, such as *"party at my place tonight"* may not need persistence, but *"party at 7:00pm Friday, 24 Moore Rd"* may. It was found that persistence varied due to medium implementation and personal habits. For example, one participant's phone was capable of holding ten text messages, while another's held 150. Likewise, some studiously archived email whilst others deleted after reading. It is sometimes the case that people have

preferred mediums dependant on direction. For example, some people prefer to make phone calls instead of sending texts, but preferring to receive texts instead of phone calls (Marmasse, Schmandt et al. 2004). Our interviewees were mostly university students, and the cost of messaging was brought up by them as an issue and that they would usually use a form of free IM over SMS where possible.

RHUB

We developed a prototype named 'Rhub' in order to further explore group-based social communication . Focusing on the messaging aspect, Rhub allows people to form or join groups, and message each other privately or as a group. Rhub has two classes of messages: instant and threaded discussion messages. It supports bidirectional interaction using the web, MSN Messenger (IM), email and SMS. Rhub manages the links between these mediums so that an IM message sent via an email to the group "football", for example, can be forwarded to all members of the group using SMS, IM or email where appropriate. For example, if a member is actively using their IM account, Rhub will forward their copy of a group message using an IM, if they are browsing Rhub's website it'll show as an alert there, or finally fallback to an SMS or email. Members can reply to a message using whichever medium they find most appropriate. Lightweight group management means that participants have created and joined groups based around their social groups or interest areas.

Rhub has been developed under a rapid reflective design process whereby possible functionality is proposed in the form of a primitive feature, and then, based on feedback, is evolved into a higher-fidelity implementation, or left as is. Implementation-wise Rhub is simple; there are other systems that have bichannel communication such as web and SMS (Sillence and Baber 2004) or group-based SMS messaging (Farnham and Keyani 2006). Rhub is different and unique in that it supports a richer combination of channels, and has features beyond messaging, such as presence and context awareness (to be discussed in a future publication).

Currently there are 65 participants, and the study has run since April, 2006. Most of the participants within each group had already known each other prior to being invited to Rhub, which is an important factor in group cooperation (Rocco 1998). As a motivator for use, SMS messages to groups can be sent for free using Rhub.

RESULTS

We found that people mostly used Rhub to communicate within groups (67% of messages), of which there were 23. The average size of a group was 8 members (s=6). Over a 20-week period, there was an overall average of 2 group messages per person, per week. Most activity was event 'hyper-coordination', as described by Ling and Ytrri (1999). When there weren't group activities taking place, the system was mostly dormant. During periods when activity was taking place, the average rose to 9.8 messages per active person, per week. Table 1 presents an indicative series of messages from Rhub, and Figure 2 plots activity over time.

Name	Source	Time	Message
Harry	IM	15:59	lets do dinner ppl
Harry	IM	16:00	Tim and I are thinking sizzler... we'll have to break in though
Harry	IM	16:00	I hope you're not getting this as SMS, that'd be really annoying
Tim	SMS	16:03	[I propose indian, or that thai place near freaky chicken]
Sue	Web	16:06	Nope - no sms. I would like a rat-poisony mess of food no doubt, however my mum is in town so I am babysitting tonight. But I tell you, that indian place at the strip isn't bad.
Lotti	Web	16:09	Not too keen on the rat poison myself... go the thai.... but already booked myself in at the pub for beer/dinner. Enjoy the food guys!
Mark	SMS	16:14	[toinght is bad for me but tmro is good and i'm in hte mood for some cards]

Table 1 - Prototypical group messages. Original spelling.

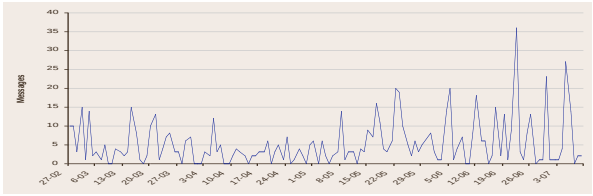

Figure 2 - Sporadic group messages over time

Multichannel messaging was very well received by participants. It was seen as a quicker, more reliable and easier way of "getting a message out". Rhub is particularly useful for group messaging, as the sender no longer has to determine which medium to use for each person, nor manage (or request) a variety of contact details. It acts as an equalizer of social information as even fringe group members can be involved without others' having to locate their contact details.

People enjoyed getting messages forwarded to their phone from their social group, typically describing them as "fun", and a "nice surprise". They also spoke of a feeling of connectedness with the group, because even though they may be geographically distributed, they can have a conversation together no matter where they may individually be. Because all messages, regardless of source or destination, persist on the web, there was a degree of safety about messages. Several users reported going to the web to clarify times and dates from old messages. IM was the preferred way for participants to send and receive Rhub messages because they often had a computer available to them, it was free, and they knew that they could reach group members not logged in to IM by way of Rhub's SMS or email forwarding.

Unintended Consequences

Participants in the largest group spoke of the volume of messages they were receiving (mostly via SMS and IM), as active periods sometimes produced over 20 messages per day. The average interviewee reported receiving 52 text messages per month prior to Rhub (*s*=49), so there is a considerably larger quantity of messages that have to be managed by the person. As one participant said, *"[My] phone holds 150 messages - it's always getting full after Rhub"*. Two interviewees described being woken by Rhub messages during their sleep, with one now putting his phone on 'silent' overnight while it charges at his bedside. Participants who received few text messages before joining Rhub formed new associations with their text message tone, saying: *"when I hear my phone beep, I know it's Rhub"*. When the group was out socially, there would be quite the cacophony when another member not present would send the group a message, as everyone's mobile beeps in series.

DISCUSSION

Messaging person-to-person is inherently more personal than group messaging. Because of this, medium selection appears to be a more thoughtful process in personal communications, whereas in group messaging, the primary concern is for messages to reach the whole group. The proposition of having personal messages delivered via Rhub did not appeal to participants as much as group messages, as evidenced in the low rate of personal messaging.

All participants agreed that Rhub's messages were worthwhile even when not critical to themselves, "the price you pay for group messaging". Even though current messages were not of interest in some cases, participants indicated they felt that future messages may be. There is a difference between receiving unwanted messages from an unknown party (such as spam), and unwanted messages from a friend. We also observed several cases of participants talking amongst themselves as to how 'best' to use Rhub to reduce annoyance and maximise utility. Both of these points open an interesting line of future inquiry.

CONCLUSION

This paper highlights and compares the meaning present in different communication mediums, which is an important consideration in communication technology design. Using a prototype, we used group social communication as a context to explore how modes are actively used, and what effects a multichannel system may have on facilitating, changing and improving group communication. We discovered that a multichannel system was considered highly useful and enjoyable for coordination and chat amongst social groups. Increased message quantity was acceptable to participants given the benefits of the program.

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