Everyday Dwelling with WhatsApp

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SUMMARY

In this report, we present a study of WhatsApp, an instant messaging smartphone application. Through our interviews with participants, we develop anthopologist Tim Ingold's notion of dwelling, and discuss how use of WhatsApp is constitutive of a felt-life of being together with those close by. We focus on the relationship "doings" in WhatsApp and how this togetherness and intimacy are enacted through small, continuous traces of narrative, of tellings and tidbits, noticings and thoughts, shared images and lingering pauses; this is constitutive of dwelling. Further, we discuss how an intimate knowing of others in these relationships, through past encounters and knowledge of coming together in the future, pertain to the particular forms of relationship engagements manifest through the possibilities presented in WhatsApp. We suggest that this form of sociality is likely to be manifest in other smartphone IM-like applications.

PREAMBLE

The development of information and communication technologies continues unabated. An ever-richer array of channels confront the user - email, SMS, social networking sites, audio calling, video calling, instant messaging and so on. Accompanying new channels are an increasing number of devices - laptops, tablets and mobile phones - and it is through these that people engage with each other in ever more diverse and nuanced ways. In this regard, the high levels of smartphone adoption have been particularly noticeable, since they provide perhaps one of the most powerful platforms for accessing combinations of communication modalities. This use is, some argue, transformative of the ways in which communications patterns are assembled to particular social effect [10]. Such assemblies are not simply a reflection of the novel aspects of this hardware and the channels it supports; they also relate to how familiar forms of communication are coming

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to be deployed in delicately new ways – one speaks face to face because of a prior text; one writes an email because of a picture sent via an IM client; one 'Facetimes' because of the SMS one received moments before; one's smartphone allows one to do all this even as one sits down to watch TV [16].

Of particular note here has been the massive adoption of a raft of mobile instant messenger applications and services on smartphones, such as WhatsApp [26], Line [22], WeChat [25], iMessage [19], Viber [24], Skype [23], Facebook Messenger [20], and KaKao Talk [21]. These are often called Over The Top applicationss (OTT) since they are independent of the network being used at any time just as they are of the smartphone itself, the device. Such applications are free or inexpensive to download and use, and offer various capabilities for sharing media - images, video, audio clips, and even location data. What is curious about these applictions is that, *prima facie*, they seem to offer little in the way of conceptual novelty; their cheapness eliding the fact that much of this functionality has been present on communication tools provided on PCs and Laptops for some time – in Gmail, Outlook, Skype. Yet many of these OTT applications now have an active user base numbering in the hundreds of millions; some providers deal with billions of messages daily. Questions as to why these OTT applications are benefiting from such high rates of adoption and usage then emerge; the success of WhatsApp and similar seems to fly in the face of what seems obvious – that these apps aren't really offering anything new, not at first glance anyway.

Explanations of this success in the mass media often highlight economic factors: the relative low cost of using these apps, especially when compared to historically more prevalent channels such as SMS, is indisputable. These new applications deliver content across the Internet (either via Wi-Fi or mobile data networks) and hence any messaging costs seem quite negligible or are perceived to be free by the user since they get 'lost' within a 'data plan'. While there will be undoubtedly economic considerations, in particular in regard to initial motivations for adoption, 'cheapness' it seems to us is too simple an account. Such an explanation lends very little to understanding the everyday meanings given to messaging practices with these applications. For one thing, the ubiquity of multiple channels – the deployment of one OTT app alongside others on the smartphone – can't be explained by cost

alone. After all, the scale of use seems to beg the question not of whether people can afford to pay for their messaging practices, as how they can pay for the time and manage so many. Even the boldest of economists would baulk at these questions, even the likes of Becker who famously claimed all cultural practices can be explained economically [7].

The other explanation to be found in the media - albeit less often articulated - points towards the rich feature set of these applications as being the driver for succss. In this view, it is the application's capacity to combine photos, video and messages that is the trick. But this too must be overly simplistic. As we have noted, this functionality has been available for a while. People certainly use these capacities, but it is not clear that one can understand the scale of their actions as merely determined by them. What is required, we believe, is a much fuller, richer explanation of what is at play; attempts to reduce practices to cost or functionality serve to obscure what needs to be understood rather than make it available. There is a requirement, in other words, to capture the quiddity of the experiences sought for and enabled by these applications in ways that reaches beyond economic or technological determinism and which accounts both for scale and the purpose of this use in ways that colours how that use is experience and oriented to; how it is lived, if you like.

OUR PURPOSE

In this paper we want to reveal this quiddity – or at least begin its uncovering. To do so we adopt a particular perspective that draws on a set of themes from anthropology [e.g. 17, 27], communication and media studies [e.g. 10, 33], sociology [e.g. 29, 30, 40] and HCI [e.g. 1, 12, 18]. These themes pertain to Simmel's notion of *faithfulness* [40] (see also [9]) which labels the motivations that bind people despite the separating tides of modernity; Licoppe and Smoreda's notion of *sociability* [30, see also 29] – alluding the manner in which people 'do' friendship' in the age of the smartphone (as background to this concept see also [4]); Farman's observation that contemporary friendships are articulated through heterogeneous *mobile enabled tellings* [10]; and the concept of *dwelling*, from Ingold [27], which he devised in an attempt to transcend crude models of social action as being 'situated' into an alternative view in which human affairs consist of an intersection of trajectories that produce a felt-life of embodied forms.

Key to bringing these ideas together is our assumption that they can be treated as resources for our exploration of the evidence rather than being merely outcomes asserted by that evidence. This will make some readers uneasy, as it highlights important differences in the approaches of CSCW, some being of the sociology and anthropology kind and others being more psychological. The former is more explorative and philosophical, the latter more committed to the idea of a discovering kind of science.

Be that as it may, the concept of faithfulness here concerns the ways in which people are disposed to experience and sustain commitment to our various human relationships. Simmel came to this notion through his interest in how modern urban society affected social relations. He observed that faithfulness in friendship would appear to be under strain – the bonds of friendship were likely be made weak by the way society was evolving. He noted that in mass urban settings, for example, the *geographic proximity* of people is not matched by their *moral proximity*. In a modern city, strangers might find themselves sat side by side on a bus or train but this close physical proximity does not reflect any moral closeness between these persons – they remain strange despite touching. Simmel noted that whilst this happens, those whom these same persons are morally close to, their friends, partners, family for example, might be some distance away, at different workplaces, say, or living in districts well removed from their own homes. Who people are close with, those they are *morally proximate* with, are then not mirrored in whom they are physically beside at any moment in time – their geography. Does this mean that society is breaking up? Simmel observes that this is evidently not so; he proposes that it is faith that keeps those physically separate morally close, that is to say, despite the physical separations created by modern living, people put effort into keeping connections alive. They trust in the continuity of friendship despite the hardship of separation; they rely on the friendship of others just as they invest in that friendship themselves. They do so through faith and *faithfulness*. We see this argument in recent work on social capital [e.g. 7, 35].

The point is that to understand why communications technologies are used one needs to understand first and foremost why people turn to them: it has to do with the desire to make and sustain bonds [5, 15, 16]. A version of this argument can be seen to preoccupy the intellectual landscape of HCI and CSCW today, even if Simmel's insights are not mentioned. Here we see the contours of this argument being altered to emphasise how it is digital technologies that create a new inflection on geographical and moral proximity; it is not 'mass society' that threatens connection. These arguments derive from contemporary sociologists, such as Rainie & Wellman [36] and Castells [7] who argue that geography, crudely speaking, no longer matters in social connection, with space dissolving in the weave of digital connection: the moral only exists in the digital, in this view.

Such a perspective, when put in extreme, is easily criticised in its exaggeration of the uniformity of access to and control of digital connection and in its oversimplification of the willingness of people from different social groups to take up the digital and thus create moral bonds [16]. But it can also be criticised for oversimplifying the relationship between the nature of moral proximity and geography and the interplay of these in the ways we live together: the

digital binds and transcends these in ways that is much more subtle and contradictory than Rainee & Wellman or Castell's allow.

As Licoppe and Smoreda put it [30, see also 29], ways of living together in the current world are made up of various flowings, of interactions and interconnection, of exchanges and encounters both face to face and mediated. These are ordered and patterned through time and space in delicately achieved rhythms of presence and absence. Different technologies of communication create and organise a set of "possibilities and interdictions" [8] that are leveraged and appropriated in the ongoing production of *sociability* in ways that is rich, artful, managed. In this sense, Licoppe and Smoreda's notion of sociabilty highlights how different sites of social encounters, whether in the real or digital world, are intimately interrelated and bound in a weave of mutually interdependent meaningful acts.

Online encounters, then, are not so much discrete, bounded entities and connections to remote others in the digital; they are instead constitutive of an ensemble of encounters that comprise our various relationships in and through the real and the virtual. Farman [10], meanwhile, draws attention to the substance in these relational exchanges; central to this is how these exchanges occur within and are experienced across a wide range of media and practical circumstances in which the fitting and appropriating of modes of communication entails elaborating narratives across time and space and in reference to the channels and devices used. In Farman's view, people do sociability through using messaging applications as not only the the technical means of communication, but as a resource to make content. A smartphone allows people to tell stories anytime and place, but it allows those stories to include images from where the storyteller is. Messaging technology becomes part of the palette of meaning and content production; smartphones and the apps they support make discourse as well as enable it to be couried.

What this points to, then, is the wrapping of the geographic, the technological and the moral into a spatio-temporal patterning through narrative actions. Simmel's original formulation of the problem of the moral and geographic thus seems at once archaic and crude. Today one can see that geographic and moral proximity are mixed and managed through the digital and the real. The articulation of absence and presence is not so much a problem as it is a resource for justifying and giving content to acts of faith.

Instead of focusing on distance, then, one should approach questions like why new OTT smartphone apps get used so extensively through thinking about how contemporary connection and forms of sociability transcend the real and the virtual, and how faithfulness - if it is still exists – must therefore have new inflections and forms. Instead of thinking of how faithfulness heals the separaton created by

'place', one might think of how faithful doings occur both in and through place and yet also through newly created digital spaces; where going to Facebook is as much a geographic locale for shared experience as being side-by-side on a couch.

The kind of lifeworld being produced in these circustamces is only now beginning to be characterized – Harper's *Texture* [16] comes to mind, though it doesn't offer any nomenclature for these circumstances. A term from current anthropology might cut it. Ingold [27] proposes that a good definition of and label for 'being' is to be found in his notion of *dwelling* [cf. 10, 16, 33]. In his view, human affairs entail a movement through and between sites of engagement, where trajectories of individuals intersect and create a texture of joint being together, a felt-life of sociality. In our view, this can be extended to include trajectories in the digital and the physical and the interweaving of the two into narratively produced dwellings that consist of a digital and real hybrid state of praxiological experience, of 'being in' and 'through' time and space [17, 33]. The argument holds that people are not simply responding to what is presented to them in any given situation; rather all situations consist of an intersection of trajectories through space and time making situatedness merely momentary co-ordinates in movement.

Our proposal then is to draw on these arguments, and use them to show how new forms of mobile instant messenging, the OTT applications like WhatsApp, are constitutive of a kind of dwelling – a dwelling in the digital age [27]. In doing this, we need to explicate how these applications enable articulations of Simmel's faithfulness but where these articulations are evidently contemporary, bound to and governed by the possibilities and interdictions of technologies, yet leveraged in everyday encounters of narrative exchange and chitchat. We need to ask if and show how they are bound to the geographies, temporalities and engagements of ongoing relationships told in and through moment by moment acts of messaging and pausing; of silences followed by fleeting 'instant' conversation.

OUR CASE STUDY
In order to do this we present a study of the application WhatsApp as a representative example of contemporary technologies of digital dwelling. WhatsApp, as the dominant player in the European market, represents a choice from our methodological point of view that is pragmatic. While it does have certain unique features in its design, it essentially shares many characteristics with other OTT applications of this genre but it also happens to be the most popular. If we were to chose any, then WhatsApp seems appropriate.

WhatsApp presents IM chats as a series of threaded messages on a wall, using spatial position and colour to differentiate sender and receiver messages (see Figure 1).

These chats can be performed either between 2 individuals (as in the left image of Figure 1) or as a group (as in the right image of Figure 1). As well as text, messages can also include URLs, images, video or audio clips. All messages are timestamped and include one or two ticks next to the time to indicate the massage has been sent and delivered respectively. Various status messages are also included such as when the recipient was "last seen online". In the UK, where our study was based, data packages for smart phones, combined with unlimited use of Wi-Fi where available, mean that in practical terms there is not a constraining upper bound on the number of messages that can be sent through WhatsApp. With SMS, while certain expensive packages offer unlimited texting, other packages set upper bounds on the number of messages that can be sent - of the order of several hundred per month[1].

Figure 1. WhatsApp screenshot (iOS version)

RELATED WORK

Over the years, computer-mediated communication (CMC) in its various forms has been a central concern within CSCW and extensively studied both within the community and beyond. While a full treatment of all CMC issues echoed in our work is not possible here, there are a number of studies that we wish to briefly review here. Of particular relevance are those concerned with understanding the practices of instant messaging and SMS [e.g. 3, 11, 12, 13, 14, 15, 31, 32, 34, 37, 41]. Overwhelmingly, what these studies point to is the use of such messaging systems, in particular by teenagers and young adults, to maintain social

relations and contact among friends and family outside of their face-to-face interactions. More specifically, such interpersonal connection is found within "close ties" rather than "weak ties", reflecting real space relationships - something that we draw on in our own work later. As well as characterising certain practices, a number of these studies aim to highlight how particular characteristics of the technologies (and related infrastructures) "shape" such practices - for example, the fact that they are lightweight, quick, cheap, and offer certain abilities to time-shift and place-shift their communications in ways relating to their particular social and physical circumstances.

While we get a sense of the similarities between IM and texting in terms of the relationships for which they are used, there is less emphasis on highlighting points of contrast. This is raised by Grinter et al. [12] in their more explicit attempts to explore the two forms side by side. While these highlight certain differences such as the use of media sharing and group chat in IM, much of the differences are bound up in how and when these different communications can be performed in relation to mobilities of SMS vs. the fixity of IM (their study, as they acknowledge, coming before large scale adoption of IM on phones) – rather than with whom. More recent work though, would indicate that there are potential relational differences in terms of the use of the different forms on the mobile. Reynolds et al. [38], for example, found that "*BBM social contacts are relationally closer and include more friends but fewer family and acquaintances than SMS.*" This would suggest that these are being oriented to in different ways.

What this also begins to point to is the shifting communications landscape that has taken place over the last few years. The adoption of current mobile devices running platforms such as iOS, Windows Phone 8, Blackberry, and Android now offers people a much richer variety of communication possibilities beyond what was available in the earlier studies. In this respect we are starting to see greater concern with these communication dealings as a whole and how people manage across this multiplicity of possibilities [e.g. 2, 18, 28]. In their study of smartphone users, Barkhuus and Polichar [2] note that while this complexity of choice would outwardly appear problematic, users are actually quite resourceful and capable customizers of their devices. They found that communication "flexibility was paramount," and that users exploited the "seams" created by the technical properties of different modes of communication in order to manage their various relationships [ibid]. Others have pointed to the process of integrating and combining these apps in what is described as "channel blending" [e.g. 18, 39]. In this respect users expertly move among the different channels in order to continue recurring, episodic conversations and draw in content from various sources, or to manage particular features of a social situation. Here, then we start to get a sense of the multi-layered nature and weave of communication possibilities where considerations of a

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[1] [1] It is worth noting here that smartphone based SMS clients are evolving more resemblances to the kinds of mobile IM applications exemplified by WhatsApp. Most notable here is in the representation of texts as threaded conversations. In addition, for some carriers in some countries there are also options for group SMS chat of the form discussed here whereby a message can both be sent to a group as well a replies being returned to all members of the group. This is carrier/country specific and was not available in the UK at the time of writing.

narrative across time and channels are of concern. As Isaacs et al. [18] articulate, "*rather than thinking in terms of technology-based sessions, we might think about coherent social acts that may take place over time and across channels (including F2F), and allow people to build on the context created during the ongoing interaction*" [18].

More recent work has described additional styles of communication that young adults associate with particular applications or platforms. Barkhuus and Tashiro [1], for example, point out that Facebook is the "glue" that holds together the nomadic social existences of university students [1]. In their work, students leveraged different parts of Facebook to organize different kinds of face-to-face meetings and events; for example, they find that structured events are organized through the Facebook event feature, but more semi-structured meetings occur by posting a status update and awaiting responses in several channels, including SMS, Facebook, and voice calls.

While these studies present some important characterisations of the multi-channeled nature of communications, and indeed some reasons related to the choices being made, it is also apparent that something more is afoot. The issue here pertains more to the relationship "doings" of these communications. More than conceiving them just in terms of "relationship maintenance" or a social "glue", it becomes important to think of these as constitutive of the particular ways people experience and enact their relationships across time. It is here where attention is drawn back to the likes of Licoppe & Smoreda, Simmel, Farman, and Ingold [30,40,10,27] and their orientation to these encounters, their various constraints and possibilities, in terms of what is enacted in ongoing sociability and dwelling together.

To state again, then, our intentions are as follows: first, despite the range of work investigating diverse communication platforms and uses of smartphones, there has been relatively little investigation into OTT apps like WhatsApp. Second, in taking the perspective of dwelling, we want to contribute to the ways in which we might approach an understanding of WhatsApp as illustrative of how this and other kinds of communication technology more broadly are to be understood analytically.

THE STUDY

For the purposes of our study, we recruited a total of 20 participants from the UK (10 male and 10 female) who owned a smartphone and were regular users of WhatsApp. The participants were aged between 17 and 49 years (median 28yrs). The participants were drawn from a range of occupational backgrounds and domestic circumstances. These included a teacher, air steward, health manager, events manager, border agency controller, civil servant, executive manager, music producer, customer services manager, full time mother, sales person, and a number of school and university students. These were variously living alone, with partners, flat sharing, living with family or away from home. Of the 20 participants, 8 were recruited as individuals. The other 12 comprised various relationship pairs, including partners, siblings, cousins and friends.

For each of the 8 participants recruited as individuals we conducted a semi-structured interview lasting approximately 1 hour. The other 12 participants were interviewed in two groups of six, each comprising 3 relationship pairs. We used relationship pairs to provide an additional resource for considering the use and experience of WhatsApp in the context of a specific relationship and from the perspective of both parties. Further, by conducting these particular interviews in groups, there was opportunity for the participants to compare and contrast their experiences with others, yielding points of agreement, tension and distinction and facilitating critical reflection on their own experiences. To help initial scaffolding of the discussion, we also employed a number of exercises to surface communication patterns across different relationships defined by the participants. For example, we employed a network elicitation task where the participant identified different groups and relationships of significance to them and drew lines of different colors to indicate which types of communication channels were used most frequently with each one. Participants were also asked to show us examples of actual exchanges in WhatsApp that they had recently experienced with a variety of their contacts. The participants would talk us through the context and circumstances of these exchanges and why they had been enacted in particular ways. These provided a more concrete grounding with which to explore the themes emerging from the interviews.

To complement our note-taking during the interviews, all of the interviews were video recorded, allowing us to revisit the details of what the participants articulated and reflect more closely on these in the context of emerging themes. An initial pass through the interviews by the research team was used to assemble together a collection of behaviours, episodes, participant explanations and evocative quotes that related to particular orientations to WhatsApp encounters. The items in the collection were clustered together by the research team to yield a set of high-level themes, which were then refined and iterated with reference to confirmatory and non-confirmatory evidence in the data.

FINDINGS

Enacting friendships

We begin with some high level articulations by participants about their doings in WhatsApp that help render salient particular social orientations to it. Consider the following:

"I don't really know what I say on WhatsApp. It's rubbish really...It's a bit embarrassing -you know what I mean."

"Mine is really trivial. It doesn't have to have a point like it does with a text message."

"Just doing tosh."(nonsense)

While such articulations are painted with a broad brush they provide a useful start to how we might grasp the essence of WhatsApp. They point to a particular kind of exchange and encounter in WhatsApp that are often without a clearly articulable functional purpose. Participants at times were almost embarrassed to explain this but in this very lack of [functional] "*reason*" and its "*triviality*" we begin to glimpse its very quiddity. Underpinning these experiences, then, would appear to be a broader set of phatic concerns. Of significance here is not simply that these exchanges *are* performed without functional reason, but that they *can be* performed without reason. This is bound up in both the specific interdictions and possibilities of the technology and the particular type of relationships being enacted through it. Overwhelmingly, such relationships were with those who were emotionally and geographically close - with people who lived close by and seen on a regular basis.

"The majority of people I use WhatsApp with are based in the UK and most of them are based in London – they are actually quite close to me – so I think it's to arrange to do things with people nearby."

"With WhatsApp I use it with friends that I see more regularly so you can kind of just ditch the conversation – there's no fuss – it comes back to being stuck in a conversation."

"It's for people I am living with day to day."

What is key in these relationships is an existing intimate understanding of each other's day-to-day lives built up through their frequent encounters. WhatsApp in this sense is not concerned with the finding out about these friends because they are already known to each other.

"You can't really catch up with WhatsApp."

"You don't really learn about your friends with WhatsApp 'cause you know them already."

So, while the technology makes no distinction between different geographical distances, the geographies of these relationships are often central to people's experiences with it. With some exception, geographically distant friends were not typically communicating through WhatsApp. The nature of such relationships and their rhythms entail a different form of engaged encounter – a "catch-up" – that is not easily performed in WhatsApp. That the geographies of these relationships matter is highlighted in particular by one of the university students who uses WhatsApp with her particular set of friends in London only when she is back home in London; when away at university, her WhatsApp use shifts to her friendship group based there.

Our arguments here are that participants' experiences in WhatsApp, appear bound up in the enactment of their day-to-day relationships. They talk of planning their doings together with and through WhatsApp, of how they giggle with these friends in those events and through WhatsApp, of how they recollect and inquest about those events

afterwards. What is apparent is an ongoing weave of text and media-based tittle-tattle and "tosh" with an emphasis on the phatic rather than the functional. WhatsApp here is a site of encounter with these friends; a means by which, we would argue, they can exhibit small but frequent acts of commitment and faithfulness. It is part of the way these relationships are experienced and constructed as an ongoing matter; in essence, part of the way they live and dwell together even when apart.

What lends additional substance to these arguments is participants' orientation to these relational encounters in WhatsApp as an ongoing concern. Participants described it as being without end – "*it's for on-going conversation*". This is not to suggest that these participants are locked in a perpetual round of continuous second-by-second exchanges that they cannot get out of. While participants do engage in some episodes of back and forth message exchange, these were not typically of the sustained kind possible when using IM with a keyboard at a PC or laptop. Within the context of these close relationships, participants in WhatsApp described being less concerned with the normal delicacies of ending a conversation gracefully. With such closeness of relationships and intimate knowledge of friends, any disinterest or lack of response was not taken as an immediate threat to the friendship. The threads were viewed by participants as something that would be picked up again whenever and wherever. Just as the friendship is never ending, so the thread of encounters is in WhatsApp.

What we would want to argue is that never-endingness of WhatsApp is critical to how we understand its quiddity and use. In part this relates to how it is constitutive of the ongoing performance of the friendship and indicative of a certain commitment to that relationship. But it is also in the *potential* for this ongoing thread that it comes to be used in the context of particular relationships and not others. We can see this illustrated in the following episode where one of the participants discussed an uncomfortable and inappropriate relationship being played out in WhatsApp.

"I've got in situations – it's a very free way of communicating – it's not on phone bills and I've got into situations where it is so chatty and soon you are in a situation where the person is saying very rude things and I have had that and it goes into – it's casual to the point of flirting – people approach you who have already got your phone number – I have had a text from a guy today saying how has your year gone so far – and he's like just trying to instigate a chat."

Apparent in this example is how she does not want this relationship played out in a particular way. She does not want the ongoing casualness of exchange but rather wants to maintain a certain relational distance. Indeed as we see here, the possibilities of an ongoing exchange with this particular person led to a misinterpretation of the relationship - an intimacy that is not reflected in any substantial friendship in the real world. What this points to

is a concern with particular relationship boundaries. It is here that we see interesting points of departure from more traditional SMS. Consider some of the following remarks:

"Friends I don't know so well I would much rather send a text to because it just keeps a little barrier up – I wouldn't want them to come back and then – so with a text it just needs one answer."

"With work colleagues? – I wouldn't WhatsApp. WhatsApp is much more to be in contact with people I want to be in contact with – my work friends are not anywhere near close to me so it's few and far between that I would need to contact them – so I would just get on and text them – because I know it's not going to be a running conversation its just going to be text messages."

On first inspection, this all seems rather curious for channels that, on the face of it, bear some strong resemblances with each other. Yet what is revealed here are nuanced ways to which these different channels are oriented. SMS messages here are seen as enabling a delicate way of providing a barrier and a distance as particular relationships dictate, be that work colleagues or more distant friends. They were viewed as something that, where necessary, could be treated as discrete and bounded entities. With the particular character limit, SMS messages had potential to be designed to be more complete. They could be used in a less open-ended way, inviting a single response in contrast to any ongoing commitment. WhatsApp was seen not just in terms of discrete messages but as an ongoing conversation.

We glean more insights here in some related sentiments contrasting SMS with WhatsApp and how these may pertain to particular kinds of relationship doings.

"Texting is more formal whereas WhatsApp is more informal and social."

Again, the idea that text messaging is regarded as a more formal channel would appear to be a somewhat surprising pronouncement. Yet it is clear from this that people are orienting to the respective quiddities of SMS and WhatsApp in subtle but important ways. In part we can attribute some of these qualities to the different economies of these channels.

"It [WhatsApp] tends to be shorter messages – not like with text where you are aware of paying for a text so you send one long text."

"[WhatsApp] is more conversational – whereas if I get a text its more of a long response so I wont reply to it whereas with WhatsApp it can just be one word."

With SMS, one participant discussed his effort to design a message within the constraints of the message character limit – as we see, this can then be oriented to with particular social effect. In WhatsApp, by contrast, there is less of a concern with doing this. A single "conversational" turn in a

WhatsApp exchange can be spread across multiple messages without recourse to conscious concerns about message economics. With this comes the possibility for a greater looseness and casualness of the exchange: a greater informality. It is these possibilities, it would seem, that people orient to in the context of their dwelling with certain types of people but not within the context of enacting other types of relationships.

Enacting groups

Our everyday relationships are not just comprised of a collection of one-to-one relationships but are played out too in a variety of collective concerns. Of significance in our arguments about dwelling is a concern with groups not just as a bounded and defined collection of people but with the ongoing encounters and enactments of relations that comprise the experience of the collective. Within WhatsApp, multiple participants can be added to a dedicated thread of conversation. Again, these groupings are bound to particular kinds of collective encounters and relationships in the real world whether these are housemates, groups of friends or specific familial relationships. Their significance lies not in their initial formation but in the ways they enable the ongoing performance of group relations. One of the participants in a shared household told of various behaviours around household organisation that are enacted through a group thread in WhatsApp with her housemates. She recounts examples of when passing the supermarket she will send a WhatsApp message to her housemates to see if any household items are needed. Similarly she will WhatsApp them to say she will be late home or to see if they will be in so as to inform the organisation of any cooking. For her, while such exchanges serve particular practical concerns of coordination, they also hold additional phatic value, being expressions of courtesy, consideration and generosity. Simply enquiring is often enough; simply informing is often enough. Such exchanges, we would argue, become part of the fabric through which being a good member of that shared household is performed and experienced.

We see other examples of WhatsApp group threads for friendship groups who live in the same area and see each other on a regular basis. Again, the enactment of these relationships combines both the practical and the phatic possibilities of WhatsApp relating to the geographies and rhythms of the real. From a pragmatic perspective, WhatsApp group exchanges were used by our participants as a way of planning and organising a night out or place to meet. The group messages were seen as providing efficiencies over individual messages for quickly ascertaining availabilities or negotiating locations and schedules. But again in such exchanges there are other ways that the group is enacted and experienced. Inviting, negotiating, agreeing, disagreeing of these coordination activities, through the group WhatsApp exchanges are also ways in which faithfulness and commitment to the other members of the group can be demonstrated.

What we also see from our interviews is that such planning and coordination encounters are not just discrete and bound communication events but rather are constitutive of the ongoing trajectories of a group's encounters. Perhaps most salient here is the continuation into what one participant referred to as the *"morning after nights out debriefs"*. In these, he describes how WhatsApp exchanges turn to group commentary and reflection about how the night's events went. Photos are exchanged, social interactions are played over, critiqued and analysed, and playful teasing carried out - all ways of participating in the group's ongoing narrative construction. This then flows into the ongoing exchange of tosh and gibberish in a never-ending thread. These threads then are not a matter of minutes, hours or days. Many of the WhatsApp groups we heard about had taken place for several years as part of the ongoing weave of other encounters among its members. In highlighting these timescales here our concerns are not with some longitudinal demonstration of repeated utility or social value of WhatsApp group messaging; i.e., that people find it useful so they keep using it. Rather, what is apparent from the interviews is how the social significance of these groups is experienced (and, we would argue, needs to be understood) in the context of these timescales – their historical narrative and prospective commitment to group relations.

The significance of this ongoing social construction of group relations through WhatsApp is further highlighted in an episode drawing on a participant's contrast with a Facebook group. In question here was a WhatsApp group comprising ten of her close university friends that had been established for several years. The participant recounted how the group exchanges messages of "absolute gibberish" all day every day – it is an ongoing concern. When planning a gathering, the participant discussed how they used a Facebook group rather than WhatsApp:

"If there was a party or something then we would use Facebook for that – messaging and groups – Facebook group messages have partners in it."

Key here was that such a gathering was also to include romantic partners of the group members. By using Facebook to organise this, the participant discussed orienting to a particular set of social concerns. In the first instance she described how she was able to confer a welcoming gesture to the partners of the group. But in the second instance she wanted to do so without conferring any ongoing commitment. So she articulated how adding partners to the WhatsApp group in this instance would not have been appropriate. So, while it may have served a similar practical function, it would also have entailed a deeper and ongoing commitment to the partners which would be at odds with their enactment and status in the real world. What this highlights is her orientation to different levels of *faithfulness* across the different relationships and how these become bound up in the organisation of online group enactment.

Awareness and Notification

We turn our attention now to consider ways that people come to acquire lightweight information about others through WhatsApp and how this becomes inscribed with particular social meaning. As we described earlier, WhatsApp has a number of notification and awareness mechanisms. These include, for example, the automatically updated *"last seen online at [date/time]"* status attached to each contact, and the tick marks attached to each message, one tick appearing to indicate a message has been sent and a second tick when that the message has been delivered (see figure 1). These features can be seen as offering some pragmatic functions (e.g. ensuring the phones and network are working properly). However, what is revealed is an additional set of concerns relating to accountabilities, moral implicatives and temporal meanings bound up in what can be perceived, interpreted and revealed through these mechanisms.

Let us consider for example the "last seen online" statement. What is critical here is that such a statement is not some immediate representation of the here-and-now. While it provides some information about contacts' temporal behaviours, there remain certain ambiguities about their current state – which, in essence, is more open to interpretation. It is worth making a point of contrast, here, with related mechanisms found in some other systems where the online status is used to represent the here-and-now of a contact's activity.

"With WhatsApp if I am online that isn't telling people that I am available for a chat – I am there with a purpose to message someone reading a message – it's just that. It's not an invitation to talk. With Skype if I am online – it's an invitation."

"With WhatsApp you have to look to see who's online – whereas with Skype it shows you everyone that is online – that's the difference. It discourages you from being online all the time with Skype."

What this suggests is that while more accurate real-time online status might on the face of it offer better information to make these judgements, it also opens up a wider set of moral implicatives and accountabilities. For example, such real time visibility is sometimes perceived by participants as representing an invitation to talk. When viewed in these terms, there would appear to be a confounding of notions of presence and notions of social availability. We can see here that such a confounding creates a certain burden that is dealt with by altering any indications of visible presence to obfuscate the "true" state of affairs.

By contrast, the "last seen online" status of WhatsApp can be seen to be oriented to in a different way. Here, such information is not regarded as an invitation to talk but rather appears bound up in the notions of knowing about. The information comes to be given meaning in the context of what we know about the other in the context of our

dwelling together. While it may be suggestive of certain activity, there is a particular latitude in terms of exactly what this means. This leads us to understood notions of plausible deniability [32, 12] in which such interpretive latitude lends itself to socially graceful ways of accounting for one's presence and rhythms of response. These are argued to be important concerns in the ways we dwell together and the ways we choose to save face and express continued faithfulness to those with whom we dwell.

What we want to argue further, though, is that such latitude is important in the scope of interpretive possibilities available to the person viewing the status update. In this respect, it is not simply an issue of *plausible deniability* on the part of one party but a *plausible accounting* on the part of the other. This points to a different way in which such awareness information is being oriented to – that is, not necessarily as a precursor to interaction and communication *per se* but something that might arguably be conceived of as a social encounter in and of itself. To illustrate this let us consider a couple of notable examples from the interviews. The first example here is drawn from discussions with a mother of a 15-year-old son and highlights something particular about what it means for her to be absent from her son. She articulates an ever-present concern on her part for his safety and well-being and how this, at times, can sit uncomfortably alongside her needs to respect his evolving independence and freedom. For her, negotiating these concerns is a delicate balance in their relationship and we see this being played out in the orientation to WhatsApp.

"On the way home he switches his phone off – to save the battery. I want to see that he is safely home... When he gets home he charges his phone to switch it on – I can see that he is online and home safe."

Here, she invokes her intimate knowledge of his everyday habitual behaviours in the real world to enable particular forms of interpretation in WhatsApp. The "last seen online" time update that takes place when he switches his phone on at home is interpreted by her in a way that renders his geography (and safety) visible. She discussed how this was important for her because it avoids any explicit need to check up on him allowing her to maintain the delicate balance of expressing trust in him and her motherly concern for his safety. What is illustrated here, we would argue, is an *encounter of knowing* as opposed to an encounter of communication.

In a related example, our discussions revealed accounts of people simply going into the application to see when certain people were last online. Significantly, such checks were not motivated by specific needs to understand particular response patterns, nor were they motivated by specific intention to communicate. Rather, their motivations resided simply in the evidence of activity.

"Seeing when they are last on line. It's a weird way of keeping track on your friends"

At first glance, these behaviours might appear somewhat curious, in particular when viewed through a lens of awareness-as-coordination device or a precursor to communication. It highlights, though, how awareness information is being viewed as an encounter in itself, motivated by phatic rather than pragmatic appeal.

Moving on from this, let us consider now participants' orientations to the message notification ticks. Generally speaking, participants regarded these as useful indications that a message had been read – in particular for time-dependent messages, such as those involved in planning, meeting up and coordination activities. But, again, a more interesting picture emerged in relation to accountabilities and moral implicatives bound up in these notifications and the ways these played out in the context of particular relationships. There were times for our participants where temporal properties of response (or not) to a message that has been visibly read came to acquire significance. Here again the issue of dwelling comes into play. For many of the close relationships enacted in WhatsApp, there was a sufficient knowing of the other to interpret these temporal properties without threat to the friendship. Certain temporal patterns were interpreted in particular ways in relation to the habits of others, for example, whether a particular contact always responded quickly when they read something or whether a contact typically respond slowly. Anything unusual or out of the ordinary in this sense is what would become significant and it is the unusual that would become a prompt for further enquiry by participants.

"I had something recently where both my best friend and boyfriend couldn't get in touch with me and I hadn't been using WhatsApp so they were getting worried I wasn't OK - so they called."

But typically, there was sufficient depth and trust in the ongoing friendship that such temporal qualities would be easily explained away in response to other knowings about their lives – they are at work, they are out playing sport and so on and so forth. But participants also talked about particular relationships or circumstances in a relationship when these accountabilities and moral implicatives did create certain social pressures to respond.

"In a way it [the ticks] is good and in a way it isn't. I wouldn't always want people to know that I have read it so seeing that people read it rather than assuming it but again it's up to a point. It's give and take. Most people aren't but a few of my friends are like 'you read this two minutes ago why haven't you replied?', even if I'm driving. I've stopped at the traffic lights I see that I have got it swipe it open – 'oh it's from Emily, big deal – will reply to it later.'"

In orienting to these accountabilities we see how people learn to deal with them in particular ways that are revealing of the tensions that can be at play in these mechanisms.

"They know that you have read it to so you have to respond. Sometimes I will get it where it pops up on my

screen. I will read it on screen but not go into the app to show that I have read it. If I am avoiding them or I am at work or I can't get into it now, I won't respond at that point."

Here, the participant seeks to read the message in a way that he thinks doesn't reveal anything to the sender – by not explicitly entering the application to *read* the message, his assumption is that the double ticks will not be revealed to the sender thereby bypassing any source of these tensions[2].

That people were orienting to different relationship concerns in their WhatsApp encounters is further illustrated by a participant discussing the use of WhatsApp in boyfriend/girlfriend relations.

"A lot of my friends have boyfriends and they won't WhatsApp each other – even if it's been going for a while. If they are having a conversation, especially if they are at different universities because they know that if they send a WhatsApp and he has read it and if he doesn't reply she can see that he has been online for the next few hours on and off has not replied for the next few hours – and it's not cause he doesn't want to talk to her it's just because he is busy… When you go into the conversation – it will say if they are typing. The girl will sit there for 10 minutes trying to word and reword things and you can see then it stops and then typing again."

What the participant is pointing to here are a specific set of insecurities and vulnerabilities at play in such newly formed romantic relationships. For her girlfriends, the minutiae of these encounters are subject to detailed scrutiny, interpretation and reflection. In this respect, the temporal properties of response (or lack thereof) in relation to a notification that a message has been read acquire particular significance. While she suggests there may be rational and reasonable explanations for these response properties, and while these may even be understood by her friends, the implication is that ambiguities and alternative explanatory possibilities sow seeds of doubt. Likewise, the visibility of typing activity is seen to hint at levels of investment in the crafting of the response. Implied here is how this temporal investment is subject to social scrutiny both in terms of what the sender thinks it may reveal and what the recipient thinks it reveals. This leads to experienced or anticipated anxieties that are dealt with through a deliberate avoidance of WhatsApp in these scenarios.

Enacting Friendship in Media Exchange

What is further notable about these encounters is how they are constructed not simply through a textual exchange but also through the exchange of various media objects. Such objects include photos, short video clips, audio clips and URLs for web pages of noteworthiness. What we argue

here is that more than simply getting these media object from one person to another, their significance lies in how they are invoked for particular forms of social enactment. To illustrate this, let us consider the common practice among our participants of sending photos as part of the *"debriefing"* following a night out. Here the real world encounters between friends are extended and continued through subsequent encounters in WhatsApp. The posting of photos and their particular juxtaposition with textual comments become part of the resources through which an ongoing narrative is produced, being constructed to sit alongside other sites of narrative production on which relationships are built and through which they are experienced and encountered. Participants describe how photos are chosen to render particular features of the events salient. The photos are used to provide contextual cues and points of orientation to augment or be supplemented by comments in the text. The significance lies not just in the retelling of events in particular ways, say for the purposes of reminiscing. Rather, through the sharing, participants constructed opportunities for the co-participation in these narrative assemblies. Key here is not so much the collective assembly of narrative details but in the selective forms of participation enabled. They are used to invite additional comment and humourous banter or simple expressions of evaluation and approval in relation to the referents being invoked. Through this, we would argue, there is the enactment of solidarity and the performance of bonding among the participants. It is a means through which they can build a shared identity and history.

We see this too in other forms of shared cultural reference by participants: *"[We] send pictures, news – have you seen this on BBC website."* Here URLs are embedded and sent, again inviting comment and evaluation and other forms of co-participation in the narrative around these. Likewise, photos are sent of other recent happenings and doings: *"I sent a photo [her hand with new nails] 2 hours ago to my Mum – I just had my nails done."* One couple spoke of how they send images to each other of things they would like to buy. In doing this, a number of things are being enacted in their relationship. First of all, the photo serves as an expression of her taste and the kind of things that she likes. In sending these images, she informed us, she is soliciting the opinion of her partner. This was not simply about the pragmatics of informing a buying decision but was also seen as showing that her partner's opinion was important and valued to her. What this suggest is that in such acts, there is a construction of a sense of we-ness: they are things she thinks they both like or need; they are things they both need to contribute to; they are things that will become constituted in their home and in the way they live together; things that can be part of their evolving identity together and so on.

Of further interest to our arguments in the interviews were some intriguing episodes of media exchange concerning the

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[2] Note though that the user has misunderstood the meaning of the double tick marks; technically, because the message has reached his phone, his conversation partner would have seen the double ticks.

exchange of snippets of other WhatsApp threads. One of our participants, a final year student, described:

"You can copy the whole chat and get it to another person like one of the other girls – like if I want to show my friends the conversation."

In these episodes, the participant takes a copy of a WhatsApp conversation and then forwards it on to another friend. The particular details of one encounter are made the subject of another encounter in which the first is scrutinised and discussed, re-examined. By sending these snippets, the participant opens up for analysis the minutiae and social nuances bound up in the particular conversation in question; its way of wording, its sequence of response, the back stories of those involved which give those nuances colour and meaning. Again, what we see apparent in these episodes are various forms relationship 'doings'. First of all, we argue, the sharing entails the enactment of a certain contract of trust between the communicating parties. They enable particular readings to be inspected and their validity tested so that this trust can be invoked and tested collaboratively, through friendship. So, for example, 'Is this person being weird by what they have written or have I misinterpreted it?', or 'Do you think this means he likes me or am I reading too much into it?' and so on. Through these various interpretations and reinterpretations, these turns at chat on and around WhatsApp conversations, insights can be revealed into a whole variety of feelings, insecurities, hopes, and expectations on the part not only of the sender and the receiver, but all those who are somehow involved in these conversations. These are ways, we would argue, that the friends in question open up to each other and come to know each other - the ways of doing their friendship.

DISCUSSION

Before offering a discussion we should remark on some of the limits of this kind of investigation. In this work, our concerns are not simply with a straightforward documentation of practices, nor with any claims of universality of practices across cultures. Furthermore it is not our intent to argue that any such practices and our discussions of them, are, in their entirety, exclusive to WhatsApp. Indeed, it is to be expected that there will be certain similarities with SMS, in particular as it evolves from its more traditional form toward some of the capabilities found in WhatsApp. Rather, and what emerged from out interviews, was a more particular concern with relationship "doings" in WhatsApp use; the ways in which such doings are constitutive of these relationships and the ways that these relationships are secured and continued.

The kinds of relationships and friendships that are apparent and articulated in our analysis are about being together or having a sense of being together through the ebb and flow of lives lived as a piece. Key here is that such a sense of being together does not equate to the people in question sharing the same physical space; the shared domain is at once real and virtual but tied together into a delicate world of felt-life. The kind of relationship and friendship that we saw in our analysis was typically geographically-bound in the sense it entailed being together in a district, but this real geography is given valence through digital connection that transforms and transcends that space.

This is not the being together of, let us say, marriage where togetherness is more emphatically about a close physical proximity. It is togetherness and intimacy enacted through small, continuous traces of narrative, of tellings and tidbits, noticings and thoughts, shared images and lingering pauses. This friendship has a history and an ongoing trajectory into the future. It has a rhythm whereby people are coming together and then parting knowing they will come back not to the same space but through the next act of communication, the next expression of 'what's happening'. Some of this is in and through WhatsApp, but more of it is through a sharing of lives, a being together. Each of these facets of being together, one aspect of which is enabled by WhatsApp, is only partial; the friendship in question is woven through time and space and trajectory. There is a tying together of the real and virtual, interconnecting with other webs of connection in the production of moral proximity and felt-life with others with whom we dwell: whose trajectories bind with our own.

What is important to note here is that the term dwelling not only labels the locales of embodied spaces we inhabit but draws attention to how the life in question, the practices in question, need to be understood praxiologically. Dwelling is not simply a place but a "doing" and needs to be seen as constituted by things done and felt endlessly in the moment-by-moment of togetherness and directionality.

A particular quality of felt-life of the relationships highlighted in our evidence is that it would seem more secure and less requiring of the functional maintenance and deeper "catch-ups" we might associate with those outside of this space of dwelling such as with more distant friends. Connections there also need acts of sorts, ones that do the work necessary to keep connection alive. But the doings and showing of faithfulness in these relationships are arguably of a different order. The casual remarkings and postings of WhatsApp would seem to make less sense outside of those with whom we dwell. They seem too ephemeral and, we would argue, less likely to be meaningful to those far away. What is key here is a knowing enough about the everyday life circumstances and happenings - their details and rhythms - to engage in these ways with WhatsApp. Further, it is in the knowing that you will be with these people a few hours or a few days later that there opens up the opportunity for these kinds of engagements to make sense; they can be made in relation to these knowings. Given these particular ways of being together, of knowing and of dwelling, the enactments of faithfulness and the communication in WhatsApp can assume a form that is casual and never-ending.

The apparent absence of purpose would seem to suggest that it lacks fertility; that it affords no oxygen for friendship. But as we have tried to highlight, these acts of communication are grounded in phatic concerns. That they often seem to lack immediate function is precisely how they offer the oxygen required. It is in the pointless chit-chat, the garbling of asides, the jokes, and the non-sequitors in WhatsApp that friendship is at once made and displayed. At the same time, the intimacy that ensures these acts of communication have meaning is made partly through these acts. It is in these ways that friendship is kept fresh, vibrant, close.

We can see too how certain kinds of relationship doings sometimes sit less comfortably within these communication forms and how other forms, such as SMS or Facebook may be used to enact certain forms of moral distance. This is illustrated for example in instances where the more bounded form of SMS messages were deliberately constructed to accountably close off the communication – to communicate without any ongoing commitment to the relationship. This is not to argue that SMS is always used like this. On the contrary, it is clear that there remains some significant overlap with what we see in WhatsApp. Rather, it is to argue that there are certain nuances of form in these technologies, in the character limit of SMS, for example, that present subtly different opportunities for producing moral distance. We saw further evidence for this in a particular use of a Facebook Group rather than amend an existing WhatsApp Group to communicate with peripheral members of a social group. Here again, the communication was performed without enacting any form of long-term commitment. The relationships we see played in WhatsApp are ongoing and committed, not requiring of such closure.

The various forms of presence and notification mechanisms available in WhatsApp need to be understood from a praxiological perspective: in the things done and felt through people's engagement with these features. Through dwelling together, significant knowledge of the circumstances of others is brought to bear on the interpretation and meaning of these particular signals. We saw for example, how the appearance of a "last seen online" status message at a particular time in the afternoon was sufficient indication for a mother to know her son was home safely. In light of her knowledge of his routine and phone habits on returning home from school, she uses the status update as reassurance of his safety. That is, these features are not simply a means by which we might know when to contact someone, or whether they have received a message. Rather they enable us to know something about others in light of our existing knowing of them. Our knowing of others also comes to bear on the accountabilities and moral implicatives associated with particular notifications and presence indicators. Lack of response to a message that had been visibly read by the other was not necessarily viewed as a threat to faithfulness in the context of these close friendships. In the context of

other relationships, where there is less assumed faithfulness, the same lack of response to a visibly read message comes to mean something different. Faithfulness needs to be worked at differently in these relationships and cannot be assumed in the same ways. This is what we saw in the case of courting couples who avoided the use of WhatsApp early on in their dating because of uncertain interpretations of behaviours and faithfulness made visible through these awareness and notification mechanisms.

In conclusion, our investigation demonstrates how WhatsApp is used by our participants as a key component their way of dwelling with others. By positioning it in this way, we situate it within the ebb and flow of lives lived together, within the web of other connections, both real and virtual. Along with these other connections, we argue that it is constitutive of the felt-life with those with whom we dwell. This helps draw our attention not just to practices with WhatsApp but to the forms of commitment, faithfulness and knowledge manifest through the possibilities presented in this form of communication.

REFERENCES

1. Barkhuus, L. and Tashiro, J. Student socialization in the age of Facebook. In *Proc. of CHI '10,* 133-142.

2. Barkhuus, L. and Polichar, V. (2010) Empowerment through seamfulness: Smart phones in everyday life. *Personal and Ubiquitous Computing, 15(6),* 629-639.

3. Barkhuus, L. (2006) Mobile Networked Text Communication: The case of SMS and its Influence on Social Interaction. In Heilesen and Jensen (eds.): *Designing for Networked Communication: Strategies and Development.* Idea Group Publishing.

4. Barthes, R., (2002). *Comment vivre ensemble: Cours et seminaires au College de France (1976–1977).* Paris, Seuil (Eng. Trans. Briggs, K. (2012) How to Live Together. Columbia University Press).

5. Baym, N. (2010) *Personal Connections in the Digital Age*, Cambridge, Polity Press.

6. Becker, H. (1996) Accounting for Tastes Harvard, Harvard University Press.

7. Castells, M. (2009) *Communication Power.* Oxford: Oxford University Press.

8. De Certeau, M. (1984) *The Practice of Everyday Life*, Berkeley: University of California Press.

9. Durkheim, É. (1984) *The Division of Labour in Society (De la Division Du Travail Social)*, Translated by W. D. Halls, Second Edition, Free Press, New York.

10. Farman, J. (2012). *Mobile interface theory: Embodied space and locative media*. Routledge: New York.

11. Faulkner, X., & Culwin, F. (2005). When fingers do the talking: A study of text messaging. In *Interacting with Computers, 17,* 167-185.

12. Grinter, R.E., Palen, L. and Eldridge, M. (2006) Chatting with teenagers: Considering the place of chat technologies in teen life. In *ACM Transactions on. Computer-Human Interaction*, *13(4),* 423-447.

13. Grinter, R.E. and Eldridge, M.A. (2001) y do tngrs luv 2 txt msg? In *Proceedings of CSCW 2001*, 219-239.

14. Grinter, R.E. and M. A. Eldridge. (2003) Wan2tlk? Everyday text messaging. In *Proc. of CHI '03*. 441-448.

15. Hall, J., & Baym, N. (2011). Calling & texting (too much): Mobile maintenance expectations, (over)dependence, entrapment, and friendship satisfaction. *New Media & Society*, 1-16.

16. Harper. R (2011) *Texture: Human expression in the age of communications overload*, Boston: MIT Press.

17. Harper. R. Bird, C., Zimmerman, T. and Murphy, B. (2013) Dwelling in Software: Aspects of the felt-life of engineers in large software projects. In *Proc. of ECSCW 2013*, Paphos, Cyprus.

18. Isaacs, E. Szymanski, M., Yamauchi, Y., Glasnapp, J. and Iwamoto, K. (2012) Integrating local and remote worlds through channel blending. In *Proc. of CSCW '12,* 617-626.

19. http://www.apple.com/uk/ios/messages/

20. https://www.facebook.com/mobile/messenger

21. http://www.kakao.com

22. http://line.naver.jp/en/

23. http://www.skype.com/en/features/instant-messaging/

24. http://www.viber.com/

25. http://www.wechat.com/en/

26. http://www.whatsapp.com

27. Ingold, T. (2011). *Being alive: Essays on movement, knowledge and description*. Abingdon, UK: Routledge.

28. Kim, H., Kim, G., Park, H. and Rice, R. (2007) Configurations of Relationships in Different Media: FtF, Email, Instant Messenger, Mobile Phone, and SMS. In *J. of Computer-Mediated Communication, 12,* 1183–1207.

29. Licoppe, C. (2004) Connected presence: The emergence of a new repertoire for managing social relationships in a changing communication technoscape. In *Environment and Planning Part D*, *22*, 135-156.

30. Licoppe, C. and Smoreda, Z. (2005) Are social networks technologically embedded? How networks are changing today with changes in communication technology. In *Social Networks, 27(4)*, 317–335.

31. Ling, R. and Yttri, B. (2002) Hyper-Coordination via mobile phones in Norway. In Katz, J. and Aakhus, M. (Eds) *Perpetual Contact: Mobile Communication, Private Talk, Public Performance*. Cambridge: Cambridge University Press, 139–169.

32. Nardi, B., Whittaker, S. and Bradner, E. (2000) Interaction and outeraction: instant messaging in action. In *Proceedings of CSCW '00*, 79-88.

33. Page, R., Harper, R. and Frobenius, M. (in press) From small stories to networked narrative: The evolution of personal narratives in Facebook status updates. In *Narrative Enquiry*.

34. Pettigrew, J. (2009) Text messaging and connectedness within close interpersonal relationships. *Marriage & Family Review 45*, 6-8, (2009), 697-716.

35. Putnam, Robert D. (2000). *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon & Schuster.

36. Rainie, L. & Wellman, B. (2012) *Networked: the new social operating system*. Boston: MIT Press.

37. Ramirez, A., & Broneck, K. (2009) "IM me": Instant messaging as relational maintenance and everyday communication. *Journal of Social and Personal Relationships, 26,* 291-314.

38. Reynolds, L., Gillette, S., Marder, J., Miles, Z., Vodenski, P., Weintraub, A., Birnholtz, J. and Hancock, J. (2011) Contact stratification and deception: blackberry messenger versus SMS use among students. In *Proc. of CSCW '11,* 221-224.

39. Scissors, L. E., Gergle, D. (2013) Back and forth, back and forth": Channel switching in romantic couple conflict. In *Proc. of CSCW 2013*, 237-248.

40. Simmel, G. (1908) *Sociology: Investigations on the Forms of Sociation*. Berlin: Duncker & Humblot.

41. Taylor, A. S., & Harper, R. (2003). The gift of the gab: a design oriented sociology of young people's use of mobiles. In *J. of Computer Supported Cooperative Work, 12(3),* 267-296.