



# MOBILE TELEPHONY CONNECTED LIVES

*Mobile phones help manage and grant instant access to users' dispersed social networks but risk violating the age-old social conventions of face-to-face relationships.*

I BEGAN PREPARING THIS ARTICLE BEFORE THE ASTONISHING TRAGEDIES OF LAST SEPTEMBER 11. THAT DAY, HOWEVER, PUT MOBILE TELEPHONY IN A NEW SOCIETAL POSITION, CALLING FOR DIFFERENT ANALYTICAL TREATMENT, AT LEAST TO THE DEGREE THAT ONE CAN DO IT WITH EVENTS SO RECENT. PREVIOUSLY, MOBILE TELEPHONY STILL POSSESSED A DEGREE OF NOVELTY, AND EMPIRICAL STUDY POINTED TO REAL DIFFERENCES IN ATTITUDES BETWEEN USERS AND NONUSERS, ESPECIALLY IN THE U.S., WHERE THE USER ADOPTION RATE IS ABOUT HALF THAT OF SCANDINAVIAN COUNTRIES. HOWEVER, IN A MATTER OF JUST A FEW HOURS THAT TUESDAY, OUR COLLECTIVE VIEW OF MOBILE TELEPHONY CHANGED FOREVER UPON HEARING DRAMATIC STORIES OF THE TECHNOLOGY'S USE IN THE MOST DIRE HUMAN SITUATIONS.

The tradeoffs we once worried about pale in comparison to the ones in the newscasts as events unfolded. Where popular articles once lamented the public impropriety of mobile telephony and its role in hastening life's already fast pace, we instead heard accounts of calls from frightened passengers on hijacked airliners and doomed office workers in the World Trade Center towers and Pentagon to parents, spouses, and friends. But knowledge of the comforting receipt of those final "I love you" and the hope that came with apparent calls from the rubble of the buildings must be reconciled with the sad awareness that the same technology had also helped the terrorists communicate and coordinate their efforts. These accounts of the extremes of the use of mobile tele-

phony are now part of the public consciousness; as a result, I expect the divide between the attitudes of users and nonusers to narrow. While everyday struggles to define and adhere to social norms, or socially accepted behavioral guidelines, around mobile telephony will remain, those shared events will accelerate the evolution of normative behavior.

Mobile telephones have revolutionized how people operate within their social networks with family, friends, and colleagues, just as the introduction of the fixed wireline telephone did in the early 20th century. Notwithstanding how the relatively recent catastrophic events stretched imaginations for how the technology might be used in social networks, we can still hope that mobile telephony might yet grant

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ready communication access to, say, people in developing countries for the first time, despite the socioeconomic obstacles. Mobile telephony can grant certain populations, even in the industrialized world, new communication access, including college students without wireline telephony in their dormitories and mobile white-collar and blue-collar workers without access to dedicated wireline phones.

To illustrate how mobile phones support social networks, I refer to empirical work [2, 8] describing the ordinary but interesting use of these phones, as well as some extraordinary accounts from the events of September 11. Mobile phones in social networks are generally used to support relationships outside the physical places and times they are usually fostered, as well as increased accessibility and relevance of membership in a network of social relationships and the expansion of these social networks.

## Connected Lives

New communications technologies like mobile telephony, email, and online and mobile text messaging allow some people to blur the boundaries once imposed by time and place. Mobile telephony supports the integration of the multiple professional and personal roles we assume by making us “telephonically present” at times and in places that once preempted such communication. Hence the wordplay on connectedness in this article; not only are people technologically connected through mobile telephony, multiple aspects of their lives can be connected or bridged through social connections.

*Crossing time and place.* The taxi drivers described in [10] illustrate the everyday use of existing social networks in new, and specifically professional, situations. Traditionally, taxi drivers contract with a central agency receiving and forwarding passenger requests and coordinating drivers’ work and dispatching them by radio. With mobile telephony,

some of this coordination shifts to the control of the drivers themselves [10]. Now, when drivers find locations with many potential passengers, they call their taxi-driving friends and family to tell them where the work is.

Other examples cited here, unless otherwise noted, are from my own 2000 ethnographic study of new mobile phone users [8]. For example, Matthew, a study participant and full-time church pastor in Colorado, manages his extensive and active social network between Sunday services using his mobile phone. His congregation leases meeting space Sundays only, requiring him to be accessible in ways other than having an office and a known schedule. Having programmed all 60 of his parishioners’ numbers into his phone, Matthew calls anyone and can be reached anywhere, whether studying at the library, conducting meetings in coffee shops, or visiting parishioners in their homes. A mobile telephony benefit implied in this account is the ability to manage multiple roles simultaneously, possibly keeping one’s location ambiguous. Simultaneous participation in disparate parts of one’s social network, however, may be considered socially impolite by those in the conversation, as well as those overhearing it, as discussed later.

The social and technical affordances of mobile phones also make the technology especially powerful for some of the disabled population. For example, John, a retired U.S. military officer, keeps his mobile phone turned on and hanging from his wrist or the arm of his wheelchair, 24 hours a day. The phone is critical in John’s freedom to mow the lawn and chop wood on his multi-acre property without worry of being stranded if he falls out of his wheelchair. John can call home or a neighbor using his preprogrammed phone book. Preprogrammed numbers also make it easy for him to contact someone he plans to meet when a physical barrier, such as a flight of

## ONE STUDY OF U.K. TEENS DOCUMENTS THE GROWING PRACTICE OF SENDING BEDTIME GOOD-NIGHT MESSAGES TO FRIENDS.

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stairs, unexpectedly keeps him from reaching his destination. John's situation highlights how mobile phone directories explicitly list members of one's social network, providing contact information otherwise difficult to recall or access while mobile.

Moreover, one generally recognized benefit of mobile communication is the ability to call friends as the appointed meeting time approaches so both time and location can be fine-tuned repeatedly so no one is left waiting [5]. Coordination frees people from slavishly keeping to schedules, which are otherwise necessary in the regulation of society.

Finally, mobile phones also help sustain deep social ties for purely psychological and emotional value. Elizabeth, a meteorologist in Colorado, uses mobile telephony to maintain social ties to her large family across a geographical distance. Her service provider's promotional arrangements mean that her in-state calls are free to family members in a distant Colorado town. The mobility of the technology, the financial advantages of her calling plan, and the temporal autonomy of her profession, make it possible to stay seamlessly connected to her family. Moreover, by regulating who has her mobile number, Elizabeth knows that incoming calls are most likely from a relative or close friend. She is therefore able to manage interruptions to other parts of her life by making on-the-fly decisions about whether to answer when the phone rings.

The desperate calls from September 11's hijacked airplanes and target buildings were acts of the deepest emotional communication, while playing a critical role in coordinating rescue efforts and developing a national response strategy. Passengers made urgent calls to report events as they happened. In one of the planes, some passengers learned the fate of the other hijacked planes and apparently took action to stop their hijackers—an extraordinary example of the kind of coordination that immediate, point-to-point communication can support. From American Airlines Flight 77, which eventually hit the Pentagon near Washington, D.C., Barbara Olson called her husband (the U.S. Solicitor General) and asked for advice on behalf of the pilots. On United Flight 93, which eventually crashed in the Pennsylvania countryside, Jeremy Glick confirmed with his wife that another plane had been hijacked and had hit one of the World Trade Center towers. Another passenger, Todd Beamer, contacted the FBI. These communications

apparently helped give passengers the information and courage they needed to resist their hijackers and help divert the plane away from its intended target. The calls also had the purpose of imparting final goodbyes and assurances to family members. On United Airlines Flight 93, Tom Burnett called his wife four times, and Mark Bingham said goodbye to his mother. Shortly thereafter and across continents, a satellite phone reportedly made it possible for the geographically remote Osama bin Laden to publicly praise the attacks while simultaneously denying his own involvement [6, 7].

*Increasing accessibility.* Mobile phones also make people more available to others, in part as a way to assure membership in social networks by becoming useful contact points. Among users, this is often, though not always, understood to be both socially and professionally advantageous. For example, Ed is a construction subcontractor whose work takes him to various job sites in the Denver area. The few wireline phones available are typically shared or situated away from the location of the actual work, making them best suited for outgoing rather than incoming calls. Having a mobile phone suddenly made Ed accessible to multiple parts of his social network, including his supervisors, which he hoped would be to his professional advantage, and his wife, who worked at home with their toddler daughter. Before mobile phones, construction sites and other remote locations provided only limited opportunity to maintain his personal ties.

Dan, a retired barber in his 70s in Boulder, CO, is an on-call TV and print model, as well as a courier for a law firm, jobs requiring immediate response as opportunities arise. Because he lives alone with no one else needing to receive calls, he has all his home calls automatically forwarded to his mobile phone, allowing him to enjoy his leisure time while being responsive to unpredictable audition and courier requests.

However, being readily accessible to others involves tradeoffs. At worst, mobile phone users never feel free to disassociate from parts of their lives, and at a minimum, calls ring through at inappropriate times. A simple solution is to turn off the phone, but doing so could have socially complex repercussions for those actively participating in social networks while mobile. For this fast-growing segment of the user population, sophisticated but sometimes problematic technologi-

cal solutions are emerging. For example, a participant in the study described in [9] is a physician and part-time entrepreneur who manages a set of complex filters through a Web-based service that regulates incoming calls. But regularly occurring exceptions to his elaborate rule structure means the filter works only partially in practice, resulting in both missed calls and inappropriate interruptions. Therefore, the technological advantage of mobile telephony in such a connected life requires behavioral changes and sometimes additional technological intervention to manage the complexity caused when multiple parts of one's social networks overlap.

The accessibility afforded by mobile phones imparts feelings of security to phone owners and their intimates. On September 11, however, New York-area mobile phone system bandwidth was overwhelmed in the moments following the World Trade Center attack with urgent incoming and outgoing calls between people trying to reach friends and family. In one notable case, another mobile technology circumvented the bottleneck; short-text messaging (a kind of abbreviated email message limited to 160 characters available on some mobile phones) kept coworkers in one Manhattan company aware and reassured of each others' whereabouts [11].

*Expanding social networks.* In addition to supporting existing social networks in new ways, mobile telephony seems to be supporting the expansion of certain kinds of social networks, especially when they involve teenagers. In Scandinavia, where deployment among people 13 to 20 years of age is around 85%, the research reported in [5] found that the number of phone numbers teens enter into their mobile phone books is a status symbol. For Scandinavian teens, social networks are represented in their phones in a quantifiable way, yielding even greater social utility from their social networks beyond that of easily connecting to the people in them.

Moreover, mobile telephony is changing the control teens have over their social networks. In regions with high deployment rates, such as Scandinavia and the U.K., more and more teenagers now connect directly to each other through these phones, without the traditional intermediaries of parents and socially sanctioned schedules [4]. Teens traditionally fostered their social connections when face-to-face at school and at weekend social gatherings, as well as through the shared, typically less-than-private home phone. Now, the connections in teens' social networks are much more active throughout the day; they use their mobile phones to talk or send short text messages at all hours of the day and night. One study of U.K. teens documented the growing practice of sending

bedtime good-night messages to friends [4].

Another study of Scandinavian teens found that mobile phones are used to support local interaction [12]. Short-text messaging was often observed to be a group activity, with the messages read aloud or shown to others. The researchers also found instances where mobile phones helped make new contacts, even ones in the physical environment. For example, they observed two boys with mobile phones in hand approach girls they did not appear to know. After an initial conversation, the boys gave the phones to the girls who then entered (presumably) their phone numbers directly into the phone books. Not only do mobile phones support and foster point-to-point contact within a social network, they also help assert local relationships and even group identity.

Mobile phones, especially via short-text messaging, also support creation of new kinds of social networks, including large, temporary ones consisting of people linked by common interests and technology. For example, demonstrators at the World Trade Organization protests in Seattle in 1999 used mobile phones to mobilize and organize their efforts as events unfolded [1].

Mobile telephony's socio-technical affordances might also constrain the use and growth of social networks. Another recent study of teenagers in the U.K. found friends with the same service providers could message each other for free but had to pay a fee to message friends with different service providers [3]. Additionally, voice calls, which are more expensive than sending text messages in the U.K., tend to be reserved for calling parents. The technical infrastructure and its consequences on billing can affect how mobile phone users construe social proximity.

Mobile phones may help with weak social ties, but heavy use of mobile phones may inhibit growth of strong social ties. For example, when users are on the phone with an existing contact, they cannot engage others who are physically proximate, reducing opportunities to make new acquaintances. Moreover, heavy use of the technology might make users more accessible to their existing contacts while rendering them inaccessible to new ones.

## **Social Propriety and Technology Adoption**

Simultaneous participation in multiple conversations represents additional concerns. For example, the public use of mobile phones is often perceived as impolite by both companions and passersby. Mobile phone use is often accompanied by the interleaving of multiple activities, including interaction with people across different parts of one's social network.

Therefore, talking on a mobile phone in the presence of others can be a matter of privileging one part of one's network over another, possibly creating a conflict between the behavioral requirements of the different social spaces. Mobile-phone users exist simultaneously in two spaces: the one they occupy physically, and the virtual one of the conversation. When a phone call comes in (or perhaps more pre-emptively is dialed out), users decide, consciously or otherwise, who takes precedence—those in the physical environment or those in the conversational space. The greater the conflict between the behavioral requirements of the two spaces, the more conscious, explicit, and difficult is the decision of whom to favor. A mobile phone user might have to violate (or at least perturb) the established social norms of the physical environment to honor the norms in the conversational space. Choosing to be behaviorally present in a different space may be perceived as inconsiderate by those in the alternate space.

Although these fundamental behavioral conflicts affect users and nonusers alike, research shows a difference in their degree of tolerance of public mobile-phone use. Attitudes are tempered by first-hand experience with the technology. Over the course of one month after acquisition of mobile phones by novice users, my own ethnographic study of new users found that attitudes about public mobile phone use change dramatically from strong disdain to a much higher degree of acceptance [8]. The same was true for attitudes about talking on the phone while driving, despite being shown to be unsafe. Based on these findings, I project that as adoption of the technology increases, people will be less strident about appropriate use; however, increasing ubiquity will also prompt demand for telephony-free zones.

These attitudinal shifts might occur more quickly than I had expected just a short while ago. The events of September 11 apparently prompted the acquisition of even more mobile phones. In fact, in the days immediately following those events, demand for satellite phones jumped after previously sluggish sales, according to sources in that sector of the industry. The desperate communication from hijacked planes, the Pentagon, and the World Trade Center towers further legitimized the usefulness of phones as a safety device—at the time already a leading reason users cited for acquiring them. Moreover, these extraordinary events—even the reports later determined to be hoaxes—are now part of the public consciousness, collectively shifting attitudes about mobile telephony's role in society.

## Conclusion

Mobile phones support users' management of their social networks, strengthening specific contacts. However, while operating within multiple parts of these networks simultaneously, users are responsible for managing what occurs when the different parts overlap. The struggle to balance sometimes conflicting priorities fuels controversy about the technology itself. The events of September 11, however, should accelerate the evolution of these social practices, along with the realization that mobile phones are like many other new technologies—neither inherently a Holy Grail nor harmful but a facile new medium for supporting the exercise of human will. ■

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