

## CHAPTER CONTENTS

• Introduction	3
• Usage of Internet and Mobile Phones	6
• Why Young Adults' Usage of Internet and Mobile Phones? <i>Earlier and More Frequent Use</i>	8
<i>A Time of Change in Social Connectivity and Social Control</i>	8
• Social Connectivity	9
<i>Concepts and General Results</i>	9
<i>Constructing Identity</i>	9
<i>Fostering and Changing Group and Network Relations</i>	10
<i>Displaying Social Relations</i>	12
Displaying Social Relations—Membership	12
Displaying Social Relations—Sharing	13
• Teenagers and College Students	13
<i>Teenagers</i>	13
Internet—Identity	13
Internet—Group Relations	13
Mobile Phones—Identity and Display	14
Mobile Phones—Group Relations	15
Mobile Phones—Sharing	15
<i>College Students</i>	16
Internet—Group Relations	16
Mobile Phones—Group Relations	16
Mobile Phones—Display	16
• Social Control	17
<i>Concepts and General Results</i>	17
<i>Developing Dependency</i>	17
<i>Balancing Self and Group</i>	18
<i>Managing Coordination and Multitasking</i>	18
<i>Navigating Family Relations</i>	19
<i>Blurring Public and Private Space</i>	21
<i>Engaging Privacy and Surveillance</i>	22
• Teenagers and College Students	23
<i>Teenagers</i>	23
Internet—Privacy	23
Mobile Phones—Dependency	23
Mobile Phones—Balancing Self and Group	24
Mobile Phones—Navigating Family Relations	24
Internet and Mobile Phones—Coordination through Multitasking	24
<i>College Students</i>	25
Internet—Dependency	25
Internet and Mobile Phones—Coordination through Multitasking	25
Mobile Phones—Blurring Public and Private Space	26
• Conclusion	26
• Acknowledgements	29
• Notes	29
• References	30

# 1 Young Adults' Perpetual Contact, Social Connectivity, and Social Control through the Internet and Mobile Phones

Ronald E. Rice

University of California, Santa Barbara

Ingunn Hagen

Norwegian University of Science and Technology (NTNU)

in C.T. SALMON (ED.) (2010), COMMUNICATION YEARBOOK, Vol. 34 (pp. 2-39), NY: ROUTLEDGE.

Each new communication medium provides different combinations and levels of way to facilitate and/or constrain social connections. These different patterns of connectivity in turn both represent and influence forms of social control. In particular, the Internet and mobile phones are fostering a sense of perpetual contact, the potential for pervasive, personal, and portable communication. This chapter considers how these aspects of perpetual contact moderate the influence of Internet and mobile phone usage on aspects of social connectivity (constructing identity, fostering and changing group and network relations, and displaying social relations—both membership and sharing) and in turn on aspects of social control (dependency, balancing self and group, managing coordination and multitasking, navigating family relations, blurring public and private space, and engaging privacy and surveillance). These issues are particularly fluid and salient to young users, so the chapter reviews relevant research from around the world on use of these new media by teenagers and young adults.

## Introduction

New communication media, in both wired and email forms, are becoming embedded in young people's everyday lives at home, in their bedroom, at school, in malls, and in transit (Goggin, 2006; Ito et al., 2008; Livingstone & Bovill, 2001; Rideout, Roberts, & Foehr, 2005). Grounded in the concept of *perpetual contact*, this chapter synthesizes research on two general social implications—*social connectivity* and *social control*—of teenagers' and college students' use of two sets of new media: *Internet*, including email, Instant Messaging (IM), and chat; and *mobile phones*, including voice, Short Message Service (SMS, or texting), and wireless email.

Each new medium removes more and/or different constraints on communication among people. Depending on the physical recording material, writing (tablets, letters, books) allowed communication across space and time

(i.e., into the future and the past), though not between people in different places at the same time. Electronic media, beginning with the telegraph and the telephone, then with the radio and television, removed more limits of space and audience (depending on signal power, and still connected people through specific, fixed-location terminals that were not technologically associated with any particular user) and time (except still required synchronous reading/listening/viewing). Transistor radios removed the limitation of location and introduced portable electronic media (enabling the user to take the medium with them, overcoming some constraints on location and contexts of use, including becoming more public as well as more private). With email, the constraints of synchronous interaction and fixed physical location were removed, but, before wireless laptops, still required users to go to a fixed terminal (a telephone with a specific number, an office desktop computer or Internet café, or data port) locations. Now, with Internet email, instant messaging (IM), and chat (and especially through wireless laptops), and mobile phone voice and Short Messaging System (SMS, or texting, and wireless Internet), many of the remaining space and time constraints, in different combinations, have been lifted. (Other constraints, such as addressability, number of communicators, cues, storage, etc., also change; see Rice, 1987.) More and more people are learning to live with very different social relations related to distance and time, largely due to these changes in communication media (Gyorgy, 2003).<sup>1</sup>

Thus communication is becoming more *pervasive, personal, and portable* (Ito, Okabe, & Matsuda, 2005). Katz and Aakhus (2002b, p. 315) call this potential state of being *perpetual contact*. Perpetual contact is the uninterrupted potential for synchronous or asynchronous communication with others at any place or time, through an increasing array of both divergent and convergent modes (text, audio, video) in personal communication technologies (Katz & Aakhus, 2002a). “Perpetual” is probably not the best term, with its connotation of extension into the infinite future, but is more justified in the colloquial sense of seemingly non-stop potentials for interaction or symbolic displays of connectedness, both in accessing and being accessed by others, whether wanted or not.

Similar concepts reflect this concern. Licoppe (2004) argues that people can now maintain relationships through a complex web of co-present and mediated communication, where the distinction between presence and absence of a salient other is blurred because he or she is always available through some means, creating a *connected presence*. People can manage multiple encounters at the same time and across time, from most any preferred or convenient place or time, and where simply maintaining contact, or even the easy potentiality of contact, is the primary message. Gergen (2008, p. 302) also refers to *continuous contact* or *floating worlds of communication*, whereby individuals are tethered to groups through mobile phones, *increasing* dense, localized, reciprocal, bounded social interaction, which may, however, lead to *decreased*

involvement in the public sphere, avoiding larger social problems and issues. Being able to communicate with different others, while “cycling-through” different communication devices, fosters a “multiplicity of digital selves.” This constant, rapid cycling through creates a sense of *continual co-presence* and even *continuous partial attention* (Turkle, 2008, pp. 122, 129). Brown and Cantor (2000) use the related term *perpetual linkage*.

Factors fostering perpetual contact are motivated by both *manifest* and *latent reasoning* or premises, about both *technology* and *social relationships*. Manifest reasoning about technology includes the qualities or attributes of mobile technologies (from more places in which to use the phone, to balancing access and control). Manifest reasoning about social relationships focuses on the qualities and processes of the user’s local social context (ranging from social roles to network externalities). Latent reasoning about technology considers the qualities of technology uses affecting performance and personal relationships (such as sharing digital photos or maintaining an ongoing but distant conversation through texting), while latent reasoning about social relationships emphasizes social dimensions influencing adoption and usage (from communication networks to changes in cultural values) (Katz & Aakhus, 2002b, p. 311). Indeed, this four-fold typology provides many of the types of uses and consequences—both positive and negative—that we review in this chapter. Many other studies and reviews underscore many of these social implications (e.g., Katz & Rice, 2002; Katz, Rice, Acord, Dasgupta, & David, 2004). For example, a Delphi survey about possible social consequences of mobile phones (Glott & Bertschi, 2005), involving 150 experts from 23 countries in two waves, identified a similar set of issues: overall, the most positive effects noted as of that time included connectivity and connectedness (15%), flexibility, efficiency, and convenience (15%), and security, safety, and emergency (14%), while the most negative effects identified were accessibility and the balance of work and life (25%), privacy, stress, and distraction (23%), and inappropriate usage (17%).

The uses of new media, moderated by the extent of perpetual contact, blur or overcome or create new constraints on social relations, fostering at least two general but central sets of social implications. As Katz and Aakhus note, “whenever the mobile phone chirps, it alters the traditional nature of public space and the traditional dynamics of private relationships” (2000b, p. 301). The first is changes in *social connectivity*, or the form and extent of interactions in one’s social network. The social connectivity issues considered here include constructing identity, fostering and changing group and network relations, and displaying social relations via membership and sharing. The second is changes in *social control*, or different social constraints and boundaries and the kinds, participants, and uses of social control. While media in general alter the relationship between individuals and their temporal and spatial contexts, these changes in time and space also involve power relations, as the increase in possibilities for movement and communication also entail aspects

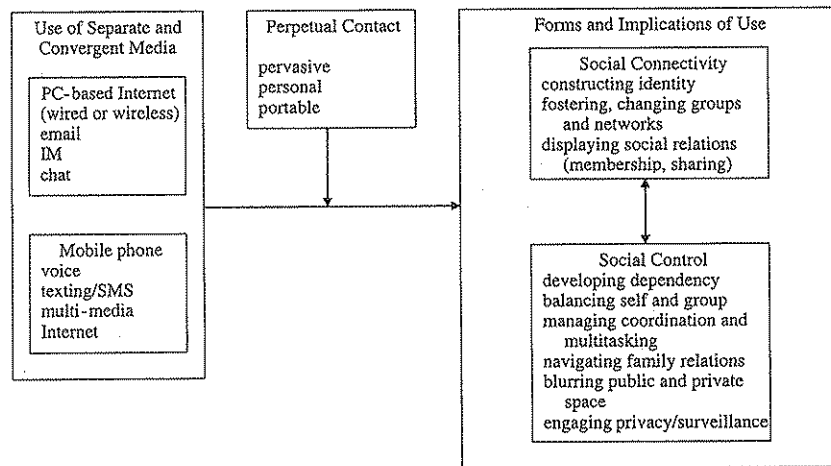


Figure 1.1 Relations among Internet and mobile phone usage and two categories of social implications of use, moderated by perpetual contact.

of control, initiation and access (Green, 2002, p. 285). The social control issues considered here include developing dependency, balancing self and group, managing coordination (including multitasking), negotiating family relations, blurring public and private space, and engaging privacy/surveillance.

Thus this review applies the concept of perpetual contact to provide a useful frame for each of the social connectivity and social control issues (Figure 1.1). The following sections first summarize general Internet and mobile phone usage, and then justify the particular focus on usage by young adults. Then, using selected research from around the world (see Wei & Kolko's call for such an approach, 2005), the subsequent sections provide a conceptual and research overview of each of the two areas of social implications and their subareas, and then specifically summarize relevant studies of teenagers and college students, generally considering Internet use first and mobile phone second.<sup>2</sup>

### Usage of Internet and Mobile Phones

International statistics indicate the growing access to and use of the new communication media of the Internet and mobile phones, through space (across regions of the world) and time (over the past decades) (see Table 1.1). More detailed usage data for the United States and worldwide are available in a wide array of sources (Howard, Anderson, Busch, & Nafus, 2009; International Telecommunications Union, 2009a, b; Internet World Stats, 2007; Kalba, 2008; Kennedy, Smith, Wells, & Wellman, 2008; Pew Internet & American Life Project, 2007; Rice & Katz, 2008).

In spite of this growth, looming over much of these usage statistics is the

Table 1.1 Internet and Mobile Phone Users per 100 Inhabitants (and related indices)

Region	Internet (a)	Internet (b)	Mobile (b)
Africa	5.6%	6.93%	38.54%
Americas	North America: 74.4 Latin America/ Caribbean: 29.9	43.78 U.S.: 71.2	81.71 U.S.: 87.6
Asia	17.4	17.04	47.56
Middle East	23.3	—	—
Europe	48.9	47.10	118.74
Oceania	60.4	45.01	82.69
Worldwide	23.8	23.05	59.69
Highest	South Korea: 76.1	Greenland: 90.8	United Arab Emirates: 207.8

Note: Howard, Anderson, Busch, and Nafus (2009) created a "relative digital divide index" to take into account country usage relative to worldwide use and country GDP related to total world GDP (both GDPs valued at constant price to control for varying inflation rates). The index represents how far above or below a country is, relatively, from the global norm of technology diffusion and economic productivity in a given year. For 2006, the U.S. Internet user index was  $-.19$  and the mobile phone index  $-.94$ —a bit lower than expected Internet users and considerably lower than expected mobile phone users. Average worldwide values were  $-.25$  for Internet users (the range was  $-3.46$  to  $2.90$ ) and  $.04$  for mobile phone users ( $-3.39$  to  $1.65$ ).

According to the World Economic Forum Global Competitiveness Report (2008–2009), in 2008, out of 131 countries, the U.S. ranked #9 in Internet users and #51 in mobile phone subscribers.

Sources: (a) Internet World Stats (2009). (b) International Telecommunications Union (2009a, b).

fundamental reality of digital divides, of different kinds, within and across countries and regions (van Dijk, 2005; Hargittai, 2002; Katz & Rice, 2002; Norris, 2001). The simplest conceptualization of the digital divide is differences in access and usage associated with socio-economic and demographic factors, especially income, education, race, gender, rural-urban, and developed-developing regions, with a range of consequences such as economic status and knowledge gaps (Rogers, 2003; Tichenor, Donohue, & Olien, 1970). Second-generation and more subtle aspects include differences in knowledge and technical skills needed to make sense of, and apply, online resources. Internationally, North American usage constitutes only 15.6% of total world users; Internet use grew worldwide 338.1% from 2000 to 2008 (Internetworldstats.com, 2009). In the United States, the demographic digital divide factors tend to be more influential for Internet use than mobile phone use, and, while a large percent of people use both, some use only one, and some use neither (Katz & Rice, 2002; Rice & Katz, 2003a, 2008). Although many studies analyze the factors influencing the adoption and diffusion of Internet and mobile phones (see Grinter & Eldridge, 2001; Jenson, 2005; and

Kalba, 2008, for economic and policy influences on mobile phone diffusion), this chapter primarily considers users, uses, and the two categories of social implications.

### Why Young Adults' Usage of Internet and Mobile Phones?

#### *Earlier and More Frequent Use*

Most research finds significantly higher rates of Internet and mobile phone usage by teenagers and young adults than by older people. More generally, youth are increasingly "always on," engaged in perpetual contact (Ito et al., 2008). (This greater usage of new media does not necessarily mean, however, that younger users have comprehensive expertise or understanding of the technology and its features—see Lenhart et al., 2008—implying other aspects of the digital divide than age and education.)

Across the nine countries in the 2003 World Internet Project study, younger people (16 to 24 years old) were more likely to be Internet users (Korea, 95.1%; Germany, 59.6%), and spent more hours per week online (Korea 16.0; although in Hungary and Japan, they spent less time than 35- to 49-year-olds, at 5.3 hours per week). In 2008, younger people (18–24) were also greater users of the Internet around the world, from 82% in Hungary to 95% in the United States and 97% in Macao (World Internet Project, 2009). In Britain in 2008, 92% of those under 18 used the Internet, from 76% to 86% for those in ranges from 18 to 54, and much lower percentages for older ranges; students were also much more likely to report meeting people online they did not know before (66% compared to 37% for employed and 19% for retired people) (Dutton, Helsper, & Gerber, 2009). *College students* are often early adopters (not necessarily the very first innovators, but those willing to try out an innovation before the early majority; Rogers, 2003) of new media (Henke, 1985; Vincent & Basil, 1997). Almost 100% of the U.S. college class of 2001 was connected to the Internet (Miller, 2001).

In U.S. married-with-children households, 89% owned multiple mobile phones, and in 57% of those, children (7–17 years old) had their own (Kennedy et al., 2008). According to a Nielsen Company study conducted at the end of 2008, U.S. teenagers exchanged an average of 2,272 text messages per month, or about 80 messages a day (Hafner, 2009). In Canada at the end of 2008, while 8% of households overall had only mobile phones, just over a third of younger households (those with only 19- to 34-year-olds) did (CBC News, 2009). Among mobile users in Europe, the highest rate of usage (77%) comes from those aged 15–25 years. Young Europeans also were the early adopters of the mobile telephone and played a primary role in creating functions for it that were unanticipated by the original technological designers—such as texting for social maintenance purposes (Castells, Fernández-Ardèvol, Qiu, & Sey, 2006).

### *A Time of Change in Social Connectivity and Social Control*

The teenage years, and especially college, may be the time in life most suffused with creating and maintaining multiple and extensive friendships, surpassing all other types of relationships (Lee, 2009; Ling & Yttri, 2002). "Throughout our lives, transitions ... provide new impetus for rethinking identity..." and communication devices "are even more intense and compelling for adolescents, at that point in development when identity play is at the center of life" (Turkle, 2008, pp. 125–126). Keeping connected to peers is especially important for teenagers as they make the transition from childhood to adulthood, from parent-defined to peer-defined self, dealing with insecurity and changing contexts (Boneva, Quinn, Kraut, Kiesler, & Shklovski, 2006, p. 202). During this time, teenagers tend to maintain their friendships through more media than their family relationships (Ling & Yttri, 2005). Peer communication provides both support and social construction of life experiences and relations with society. Peer groups are "midwives" to the transition and liberation from parents to one's own identity (Ling & Yttri, 2005, p. 220). Teenagers are especially susceptible to social influence (by peers and parents) on their media use (Nathanson, 2001). One challenge for young adults is to figure out how to both increase and regulate their availability at the same time (Liestøl & Rasmussen, 2007). Beginning college represents another significant transition for young adults, requiring both separating from, as well as attempting to stay in touch with and obtain support from, close friends and family, in addition to integrating into a new social context and demands (Quan-Haase, 2007). This is less an issue for those who do not go to college, however; but, as Quan-Haase notes, even those will likely have friends who move away and, as they go to work after high school, there may be fewer occasions for face-to-face interactions with as many others.

### Social Connectivity

#### *Concepts and General Results*

This section briefly reviews how the Internet and mobile phones play a role in social connectivity, from a more individual perspective (constructing one's identity) through a more group and network perspective (both fostering or changing relations, and displaying them, either as a sign of membership or through sharing).

#### *Constructing Identity*

Receiving online or mobile phone and SMS messages can be an affirmation of one's identity, status, and membership in salient groups (Ling & Haddon, 2008; Ling & Yttri, 2002, p. 149). Katz and Sugiyama (2006) emphasized the role of mobile phones, especially as a fashion object, in identity creation and maintenance.

### *Fostering and Changing Group and Network Relations*

New media can both reinforce as well as change the form and boundaries of personal communication networks. They foster "the development of a 'connected' management of relationships, in which the (physically) absent party gains presence through the multiplication of mediated communication gestures on both sides, up to the point where co-present interactions and mediated distant exchanges seem woven into a single, seamless web" (Licoppe, 2004, p. 135).

Across the 10 countries surveyed in the 2003 World Internet Project, Internet users reported that their use had increased contact with those who: share their hobbies or recreation interests (highest for China, with 47.2% reporting an increase; lowest for Germany at 1.2%); political interests (China, 21.1%; Sweden, 3.1%); religion (China, with 11.2%; Sweden, 1.3%); profession (Spain, 32.4%; Singapore, 13.8%); family and friends (U.S., 44.4%; China 8.1%). They have also developed friendships with people they have met online but not met in person (China average of 2.3%; Japan, 1.1%). They have met some of those in person (highest Spain, average of 2.3%; lowest Japan, .6%), and the highest average numbers of people they have met online but not in person are for young users (China, 10.1%; Japan, 1.3%). Also, across the countries, Internet users reported slightly greater socializing with friends than non-users (highest for Taiwan, 23.0% reporting increased socializing; lowest for U.S., 8.4%).

The mobile phone provides different ways for different people to reinforce or reduce different sets of relationships (e.g., youth, their friends, and their parents) (Harper, 2010; Harper & Hamill, 2005). In one study nearly half of cell phone calls by family members were made from work, implying its use as a device coordinating work and social/family life (Ling & Haddon, 2003). A comparison of social network patterns through five communication channels also found interconnections between work and family through face-to-face and mobile phone, and somewhat with email, but not IM or SMS (Kim, Kim, Park, & Rice, 2007). While the cell phone seems to be used for both work, social relations, and family members, the reasons may differ (Leung & Wei, 2000).

Ling (2008b) argues that the mobile phone is one of the few technologies that increase social cohesion. The extent to which communicants attempt to maintain relations across space and time—approximating perpetual contact—is a sort of test of the level of their mutual sociability. Among Danish mobile phone users, for example, this constant availability is linked to the significance of friendship, and thus to being available for friends all the time, even at night, if they are in need of support, comfort, or someone to talk to or laugh with (Stald, 2008). Ling (2008b, p. 43) agrees with Durkheim's (1912/1995) argument that rituals expose and connect the individual to collective ideas, affirming the social. Through mutual awareness of each others' participation in and shared mood from a ritual, within a clearly bounded group, members develop a mutual sense of solidarity. Cohesion develops and exists through

shared conviction, group traditions, and culture. Thus perpetual contact is a new, even replacement, ritual totem (a durable object, image or symbol strengthening memory of the group and the group's self-awareness), able to be renewed through time, instead of only at specific, formal ritual times (Ling, 2008b, p. 51). In particular, mobile phones enable the more daily, mundane rituals of social interaction as analyzed by Goffman (1967)—situations involving micro-signals, deference, and demeanor, frontstage and backstage behaviors, greetings and exits. A mobile phone call now generally trumps co-present interaction, or becomes another component of it (such as texting while navigating the sidewalk; Ling, 2008a, p. 168). Further, mediated interaction may provide a motivation or context for, and then later an opportunity for reflection about, in-person ritual interaction.

Text messaging also supports ritual engagement, through specialized jargon and spelling, group-based forms of interaction, marking group membership and boundaries, reinforcing the group's ideology, acceptable phone accessories and style, humor, communication repair, and gossip (Ling, 2008b, chapter 8). Sharing text messages, even sending them to each other while jointly observing their mobile phone screens, is a form of "doing friendship" that not only creates some mutual dependence, but also requires commitment and action (relational "work") (Harper, 2010, p. 102). Bonding is also strengthened through time spent sharing or discussing mobile phone address entries and jointly reading and discussing messages (Green, 2002).

However, mobile phones also create new challenges for the successful management of these rituals, such as talking with someone while also co-present with others (see below, under coordination). Ling notes how this requires communicators to now present themselves and maintain somewhat different identities simultaneously to two groups. Thus mobile phone users must navigate multiple connections, identities, forms of control, and tasks, without threatening the solidarity of either group. In addition, the increased group solidarity associated with ritual use of mobile phones may also reinforce current knowledge and ideologies, exclude outsiders, lower norms, and inhibit individual initiative (2008b, p. 181).

Other research from around the world reinforces the proposition that mobile phone usage is associated with, and increases, group cohesion and social networks (Castells et al., 2006). In Norway, there were positive associations between mobile phone use and peer social inclusion, being more popular, having more friends and greater sociability, though negatively with time at home (Ling, 2008b, p. 164). European studies have found greater mobile phone usage associated with several kinds of informal social interaction (Ling & Haddon, 2003) and strongly associated with friendship networks (Smoreda & Thomas, 2001). In France, mobile phone use tightened the network of close friends (de Gournay, 2002). Among Korean users, mobile phone use strongly complemented face-to-face ties, though SMS not as much (Kim et al., 2007). In Taiwan, it was associated with strengthened family bonds, and expanded

social range (Wei & Lo, 2006). A Japanese study found that the mobile phone was used most frequently for communicating with one's partner and somewhat less frequently with friends, and lead to more face-to-face meetings (Matsuda, 2005). In sub-Saharan Africa, it strengthened communication with one's family and group, including for organizing and attending funerals (Donner, 2007).

More specific evidence of the relationship between mobile phone use and close personal networks is that in many cases, while people may have many addresses in their database, they typically regularly contact only a few of them (in both Norway and Japan, from 2 to 10; Ling, 2008b, p. 165), who are primarily close friends (Igarashi, Takai, & Yoshida, 2005; Ito & Okabe, 2005). These frequent communication partners represent a very bounded, close in-group, and most of these are physically nearby (Norway, half less than 10 kms.; U.S., 70% less than 25 miles), especially so for texting compared to voice mobile phone (Castells et al., 2006; Reid & Reid, 2005). And that text messaging often involved simultaneous, interconnected communication within those small groups (Igarashi et al., 2005; Reid & Reid, 2005, referring to "text circles").

### *Displaying Social Relations*

*Displaying Social Relations—Membership.* Having a large list of "buddies" and having frequent communication may help fill the need for a sense of belonging to a wide community (Grinter & Palen, 2002; cited by Boneva et al., 2006, p. 204). Having one's mobile address book filled up is a sign of one's social standing, even if most of those numbers are never actually called (Ling & Yttri, 2002, p. 161). As leaving and entering the displayed group list is indicated in IM, others are "present" whether actively IMing, or even by providing automatic messages indicating their status. Keeping one's IM buddy list open on the computer screen is a silent reminder of the group that one belongs to, even communicating to others that you belong, without having to actually communicate (Licoppe & Smoreda, 2005).

One succinct form of communication signaling close membership in a relationship or network is the "bomb call," where the caller lets the phone ring only a few times and then hangs up (Oksman & Turtianen, 2004). The receiver can view the caller's number stored in memory, so this represents the simple but significant message that the caller is thinking of the receiver. It can also be used as short codes, to convey information without incurring charges. This technique is only meaningful for those already socially connected—both because of the need to be familiar with the caller's number and with the code—and represents a subtle form of perpetual contact. Simply owning and displaying various new media, including specific models or brands, play significant symbolic roles, such as peer group identification, fashion sense, identity-shaping, status, etc. (Katz & Aakhus, 2002b; Wirth, von Pape, & Karnowski, 2008).

Holding, handling, and fiddling with the mobile phone even when not using it to converse with someone else can also provide a reminder that one is not alone, that one could interact with, or even just be aware of, members of their close network at any time (Cooley, 2004). Donath and boyd (2004) interpret displaying one's connections or being included as part of others' connections "signaling"—providing cues and indicators of underlying beliefs, values and resources, on the basis of which others can make more or less informed decisions (such as trusting someone).

The digital divide concept briefly noted early on emphasizes that non-use of the Internet or mobile phones is not a matter of preference or selection for the majority of the world's population, but still may have a wide range of social and psychological implications concerning inclusion and exclusion of social groups.

*Displaying Social Relations—Sharing.* Mobile camera phones especially give people a means to interpret and share their lives visually, elaborate their experiences together, and engage in a bond maintenance ritual (Hagen & Wold, 2009; Haddon, 2004; Koskinen, 2007). Mobile phone messages, photos, and music are primarily used for sharing affective content within already close small groups, typically involving co-present showing and distribution, but also sending and redistributing, creating chains of content and comments (Koskinen, 2008, pp. 247–248). Shared texts or photos or videos are not only gifts, but part of social rituals and thus even obligations (such as calling or texting "good night"), as well as attempts at repair and maintenance of fragile relationships (Harper, 2010). Users share a range of artifacts through their mobile phones, such as documents, photos, greetings, chain messages, etc., for at least five general purposes: documentation of work-related objects, visualization of details and project status, snap shots, postcards/greetings, and "chain-messages" (Ling & Julsrud, 2005).

### **Teenagers and College Students**

#### *Teenagers*

*Internet—Identity.* In a 2004 Pew study, IM allowed users to personalize their communication, through buddy icons, personal profiles, and "away" messages, and include additional information such as links to websites, send photos or documents, or music or video files (Lenhart, Madden, & Hitlin, 2005).

*Internet—Group Relations.* One of the most rigorous and comprehensive tests of various theories about social outcomes of adolescent online communication comes from Lee's (2009) analysis of 1,312 U.S. adolescents aged 12–18, using survey data from 1997 and 2003 and time diary data from 2003. Online use for communication and recreation, but not for study

or computer games, displaced time spent with parents, while use for study and recreation displaced time spent with friends. Higher quality relationships were significantly related to online communication, which in turn lead to more cohesive friendships, which then influenced greater connectedness to school. So adolescent online communication fostered both decreased connectivity (in terms of time spent communicating with family and friends), as well as, especially for those who were already sociable and had high quality social relations, increased cohesiveness of their friendships. Lee did not find support for a social compensation hypothesis, but others have. That is, adolescent users may turn to the Internet to try to compensate for lower psychological well-being, a sense of isolation, or stressful life events (Gross, Juvonen, & Gable, 2002; Seepersad, 2004) through entertainment or relationship maintenance (Leung, 2007).

The Pew report stated that by 2004 87% of those between the ages of 12 and 17 were online, half went online every day, and 45% owned a cell phone. They were using a wide range of communication technologies (with 44% indicating they had two or more devices such as desktop or laptop computer, cell phone, or PDA). They tended to use email for communicating with "adults" and institutions and when transmitting lengthy and detailed information to many others, while using IM for day-to-day conversations with a range of friends. Similarly, young adult Danish respondents used email more, and more for studying or work-related contacts, than did teenagers (Østergaard Madsen & Stald, 2005).

IM communication among teenagers includes content such as informal talk, socializing, event planning, and schoolwork communication (Grinter & Palen, 2002), while Flanagin and Metzger's survey (2001) found that students used IM mostly for social entertainment, social attention, task accomplishment, and meeting new people. Boneva et al.'s (2006) study of 106 communication sessions (visit, phone, chat/IM) from 26 interviews of U.S. 13- to 18-year-olds reported that much IM content is about mundane events, planning, chatting; young people may simply need numerous and frequent communication, apart from substantive content. However, in the middle of this, they often shared personal information or support or advice, so the mundane initial motivation provided a context for exchanging more emotional content. IM conversations were more likely social or personal (87.8%) than was communication during face-to-face visits (58.1%) or phone conversations (54.5%).

*Mobile Phones—Identity and Display.* Young people use the mobile phone as one way to create, explore, and shape their social identity through their networked communication partners and visible, oral and aural mobile phone behaviors (Ling, 2008a, b). SMS can further facilitate the management of young people's social life through overcoming shyness, facilitating appropriate behavior, and exploiting the conciseness of messages. For young Koreans, the primary goal of mobile phone use is individualization (Yoon, 2006). Teenagers

in general engage in their "identity project" by "creating" their mobile phones through their choice of model and features as well as downloadable ring tones and applications, and in projecting images and social status to peers through these choices (Caronia & Caron, 2004; Skog, 2002, p. 255).

*Mobile Phones—Group Relations.* Buddy/friend programs like MSN (messenger) (which can be private) and SMS (which can be public or private) have taken over from chat programs (public) as communication channels for young people in Sweden (Dunkels, 2009). Today's youth are mainly interacting based on common interests, friendships and acquaintances, school class, family or identity, thus preferring the more private and closed media forms. The youngest interviewees in Østergaard et al.'s (2005) study of teenage and young adult mobile phone users were the most eager senders and receivers of SMS. Around the world, youth perceive texting as making them easily accessible to each other nearly 100% of the time, without decreasing their independence (Castells et al., 2006). SMS/texting, compared to PC-based email, is preferred more and more in Japan and other Asian countries and by young people (Bell, 2005; Ishii, 2006; Kim et al., 2007).

Mobile phones are "used to define who belongs to important social communities and how self-presentation is constructed on a social stage in relation to others" (Oksman & Turtianen, 2004, p. 335), and to have access to a young person's entire social community wherever they go, at home or outdoors (Tønnessen, 2007), especially relevant in the long winters of Finland and Norway, respectively. Swedish children and young people use electronic communication both for maintaining existing contacts and for getting new ones (Hernwall, 2003). Some do this because they lack friends, while others felt they developed more interesting contacts through digital arenas, because it was easier to meet with people with whom one shares common interests. However, most often digital channels were used to negotiate face-to-face meetings with existing friends. Danish teenagers and young adults (15–24) emphasized that one of the major advantages of the mobile phone is that it creates reciprocal availability, especially through being able to write and receive text messages/SMS, regardless of location (Østergaard et al., 2005).

*Mobile Phones—Sharing.* Taylor and Harper's (2003) ethnographic study of UK teenagers described how teens use phones to participate in social practices which resembled ritualized gift-giving. Text messages, call-credit, and mobile phones themselves were treated as gifts, which carry symbolic meaning through the exchange ritual. Further, the value of that gift may vary by the content and style of the message. Young Koreans find text messaging useful in developing friendships after initial face-to-face interaction (Yoon, 2006), and perceive SMS as a strongly reciprocal form of gift-giving (Yoon, 2003).

### College Students

*Internet—Group Relations.* A crucial role of mediated communication is to manage the transition from high school to college, maintaining social connectivity with old friends while developing new relations. Cummings, Lee, and Kraut (2006) tracked high school students over three years as they moved to college (spring of senior year in high school through the end of their junior year in college), collecting a wide range of data on activities as well as their network of high school and college friends, involving 585 respondents and 2,526 communication partners. Email and IM seemed to guard better against declines in closeness to high school friends after one moved to college—possibly because communication frequency was least affected by distance and cost—even though phone communication was the strongest predictor of closeness. However, concerning their new college friends, the students communicated much more via in-person and phone interactions than through email and IM.

Primary uses of the Internet by U.S. college students include social communication, entertainment, easily keeping in touch with their friends, and communicating with friends and family; 42% of college student Internet users socialized online (Pew Internet & American Life Project, 2002). Based upon an analysis of U.S. college students' communication diaries, Baym, Zhang, and Lin (2004) found that the Internet was clearly integrated into college student's lives, and used as much as the telephone. Social interactions on the Internet were mostly through email (73%), but also chat (20%) and IM (7%). Still, most interactions were face-to-face (ftf; 64%), although most respondents (64%) socialized through all three media, and 24% through ftf and phone only. Canadian first-year university students also integrated the Internet (email and IM), mobile (phones and texting), and offline (ftf and telephone) to support both their local (within 30 miles) and distant social ties (Quan-Haase, 2007). Email and IM were especially valuable for integrating distant and local ties into their daily lives. Quan-Haase particularly emphasized how students used this array of media in combination, and with multiple others, sometimes at the same time, both local and distant.

*Mobile Phones—Group Relations.* A majority of the college students in a four-state U.S. survey reported using their mobile phones for "the purpose of social stimulation, to remain continually available, for domestic reasons, to leave themselves memos and reminders, for time-keeping, for emergency purposes, and to use the phone's phonebook function" (Totten, Lipscomb, Cook, & Lesch, 2005, p. 13).

*Mobile Phones—Display.* More recent adopters (i.e., those further along on the adoption curve, and thus less likely to be early adopters) and those with

lower social skills in the Baym et al. study (2004), were more likely to indicate fashion ("the symbolic display of the cell phone"; Leung & Wei, 2000, p. 68) as a significant influence on mobile phone use.

### Social Control

#### *Concepts and General Results*

As new media, and ways of using those media, decrease more and more constraints, social relations that had formerly been either separate, or clearly structured, are now blurring or expanding their domain, sometimes creating new constraints (Ishii, 2006). Thus, Internet and mobile phone use has implications for social control, ranging again from a more individual perspective such as control of one's own usage (dependency), controlling communication access to and from one's group, and iteratively coordinating plans, social activities, and multiple tasks, through negotiating changes in parental-youth relations, and the increasing dissolution of private-public space boundaries, to understanding the interplay between control over privacy by individuals, groups, corporations, government, and society (Green, 2002).

#### *Developing Dependency*

Ironically, precisely because it is now so much easier to foster a sense of perpetual contact through frequent even if short contacts, lapses of that web of contacts may generate heightened concern about belonging and relations, a panic, a sense of being disconnected and isolated from the organic network of ongoing relations (Licoppe & Smoreda, 2005). For example, perpetual contact involves constant disruptions of social situations when the mobile phone interrupts and demands attention, especially since many feel that they "have to" respond immediately to text messages (Stald, 2008). Eighty percent of Danish informants said that they never turned off their mobile phone. Many seemed afraid to miss out on something even if they only turned off their mobile for a short time. The other 20% turned it off for between 4 and 12 hours, mainly at night to get undisturbed sleep, at work when necessary, at the movies, at school, at a restaurant or in the quiet zone in trains. Even then, they may check their display for incoming messages when the mobile is vibrating (Stald, 2008). Turkle's (2008) version of the perpetual contact concept—the *tethered self*—reflects some of this dependency, as users become reliant on the gratifications, identity, and support they derive through these media. This dependency may lead to *mobile phone addiction*, found to be higher among Hong Kong adolescents who were female, experienced leisure boredom, had higher sensation seeking and lower self-esteem, and spent more time with friends/classmates (Leung, 2008).

### Balancing Self and Group

Internet communication and especially mobile phone communication can allow more control over one's self-presentation as well as the actual content than face-to-face interaction (Oksman & Turtianen, 2004; Walther, 1996). Licoppe and Smoreda argue that new media "allow people to re-negotiate the constraints of individual time rhythms, and of who one communicates with," leading to changes in "roles, hierarchies and forms of power in relational economies" (2005, p. 317). Mobile phone use can be strongly connected with human perceptions of influence, power, and status (Ling & Yttri, 2005, p. 221; Ozcan & Kocak, 2003 in a study of Turkish users). New media offer communicants some similar and some different ways to control others' access to the user through what Baron (2008) called *volume control*—such as to increase, avoid, or manipulate conversation, and allow multitasking while engaged in a conversation. For example, email can reduce the influence of differential personal status and hierarchy, reduce the need to answer immediately or lose the communication, and allow broadcasting or forwarding to third parties, some of whom may be unknown to both caller and forwarder. Mobile phones allow personal ring tones for specific callers, and even offer "camouflage" services that provide false background noises and false ring tones to activate during another conversation.

### Managing Coordination and Multitasking

Coordination through new media represents "deeper issues of openness, availability and access" (Katz & Aakhus, 2002a, p. 9). Themes found in Norwegian SMS messages included *coordination, praise, answers, questions, information, commands/requests, and personal news* (Ling, 2005b), some of which reflect issues of control.

Text messaging increases ad-hoc coordination and is a tool for keeping up socially and maintaining relationships (Brown, 2001; Grinter & Eldridge, 2001; Jenson, 2005; Ling, 2004). Mobile communication supports the management of interaction, especially when the participants are distributed through *micro-coordination and hyper-coordination* (Ling & Yttri, 2002). Micro-coordination bypasses centralized, large or fixed decision-making groups or structures, in three ways: (a) *basic logistics*, or adapting a trip or plan already in progress; (b) *time softening*, letting others know if your schedule has been changed; and (c) *progressively exact arrangement* of some kind of meeting or get-together. The instrumental micro-coordination of everyday life is closely related to the pervasiveness, personalization, and portability of the mobile phone. Green (2002) similarly emphasizes the micro-coordination of everyday life through mobile devices, as the potential for perpetual contact affects task sequencing and deadlines. Users can take advantage of short temporal gaps in activities to communicate with others, maintain personal relationships throughout otherwise public and other social rhythms, embed their private activities in

public spaces and time, and organize activities around time instead of around space and place. However, others' access to users at any time also produce new controls and constraints, reducing temporal and spatial flexibility. Hyper-coordination, on the other hand, involves (a) *expressive, or emotional and social communication*, as part of the rite of passage from adolescent to adult, learning social and technical skills not from adults but from peers; and (b) *in-group discussion about appropriate forms of self-presentation through the mobile phone* (fashion, display, location), including jargon that identifies their membership and excludes others (such as parents, but also unwanted peers) (Ling & Yttri, 2002).

Another aspect of coordination is the increased extent of *multitasking* associated with new media use, involving coordinating multiple activities (including communicating through other media) while communicating with both distant and co-present others (Ling, 2008b; Rideout et al., 2005). Multitasking as an *activity* is working on more than one task at a time (concurrent) or switching between them quickly (sequential) (Spink, Cole, & Waller, 2008). However, multitasking may also be conceptualized as an *ability* to engage in multiple tasks at the same time. People also vary in *polychronicity*—the preference for, and belief in the superiority of, engagement in two or more tasks or events (Bluedorn, 2002). Holmes, Papper, Popovich, and Bloxham (2005) found that 96% of their respondents engaged in concurrent media exposure, involving 30.7% of their total daily media exposure. In particular, 80% of the Internet use involved at least one other medium, but only 28.5% when TV was the primary task. The merging of mobile phone use with other communication—and non-communication—activities (receiving calls while watching TV, or texting while walking) (Ling, 2008a) is another form of multitasking. IM use frequently involves communicating with multiple others at the same time (Boneva et al., 2006), and SMS/texting allows for parallel communication environments, where the various multitasking activities are not seen by the different groups (Ling & Yttri, 2002, p. 165).

### Navigating Family Relations

The perpetual contact afforded by the phone can create *symbolic proximity* (Wei & Lo, 2006) between children and their parents, suggesting that they are virtually together. This symbolic proximity provides reassurance and support to children and young adults. Using media to manage family relations and activities "includes elements of both control and care" (Christensen, 2009, p. 436), as well as security and safety (Mante-Meijer & Haddon, 2001), often in the same communication. Christensen's qualitative analyses found that parental-child mobile calls or texts reflected attentiveness to children, developing mutual accountability, sharing unusual experiences, personal problems, asking for permission, parental control, and micro-coordination (2009). Any call, of course, may involve more than one of these issues. A study of

Danish families showed how parents used the mobile phone to mediate a sense of closeness between each other and with their children while apart, through frequent calls and text messages (Christensen, 2009). While useful in managing, maintaining and reaffirming family relations (as well as in providing "micro-coordination" of family activities; see Ling & Yttri, 2002), these media simultaneously supported greater family dispersion through time and space, enabling the "distributed family" (p. 432). Green's (2002) ethnographic analysis of mobile temporality concluded that mobile devices facilitated shorter and more fragmented conversations requiring less time to read and respond, but also opportunities for more conversations with more people and of types not previously available, resulting in greater overall duration of communication. "The long durations act to consolidate their peer relationships, differentiate them from family or household relations, and contribute to a growing sense of both independence (from family) and collectivity (among peers)" (p. 286).

The increasing mobility, specialization, spatial individuation (such as media-rich bedrooms and mobile phones with headsets) and membership in multiple groups require coordination of the family through and around such media (Livingstone, 2002). In an early 2008 Pew survey, households, especially those with children, used their mobile phones to coordinate and connect family members during the day, while just over half used the Internet to share online browsing and entertainment when at home at least a few times a week (Kennedy et al., 2008). A quarter of adults felt their family was now closer than when they were growing up, while 11% felt they were not as close. Respondents also felt that using the Internet and mobile phones increased the quality of their communication with family members who did not live with them (53%), friends (47%), and co-workers (40%).

Certainly, social control over the timing, location, and uses of new media is a site of ongoing tension and negotiation between youth and their parents (Hagen, 2007). In a 2008 British survey, 81% of households reported having rules (such as not giving out personal information, contacting strangers, visiting some sites, time spent, etc.) on Internet use in the home for children between the ages of 14 and 17 (Dutton et al., 2009). According to a 2006 Pew survey, U.S. parental control of teenagers' Internet use tends to focus more on content (68% have rules) than time spent online (55%). Further, 65% of parents reported that they checked what their teenager had been viewing online, and 74% knew whether their teenager had ever created their own social networking profile, both indicating both control and engagement (Macgill, 2007). The mobile phone can also be used by parents as a tool for monitoring and control; they call to check up on the activities of their children, or inspect monthly calling logs (Wei & Lo, 2006). However, youth have developed media strategies to avoid their parents' control (Wei & Lo, 2006). But freedom from parental control also involves constraints and repression from new social structures and contexts, such as one's peers, as noted above.

Donner, Rangaswamy, Steenson, and Wei's (2008) three case studies in India within families concerning family finance, courtship, and domestic space highlighted how the purchase and use of mobile phones were still couched in, and reflected, ongoing discussions about traditional behaviors and values, especially as middle-class families move from traditional to modern practices. For example, tensions arose as to how to allocate a limited household budget between parents and children, sometimes requiring the children to explain and participate in making choices among features and calling plans. Mesch and Talmud (2008) discussed four dimensions generating tension with families concerning the adoption and use of ICTs by Israeli Jewish and Arab teenagers: (a) a patriarchy that fosters female inequities, whereas ICTs may break down some of the gender boundaries; (b) social behavior is based on tradition, which is somewhat resistant to ICTs, because they allow exposure to external, competing ideas; (c) thus a typically strict hierarchy in more traditional communities may enforce tradition by censorship, which may be bypassed by mobile phones; and (d) collective identity and explicit boundaries are emphasized in traditional communities, while ICTs foster not only anonymity and individual freedoms, but also interactions across these boundaries.

### *Blurring Public and Private Space*

Pervasive, personal, and portable media are shifting boundaries—physical, temporal, and social—between what were formerly more or less explicit boundaries between public space and private space (Humphreys, 2005; Katz, Rice, Acord, Dasgupta, & David, 2004). Wellman (2001) also noted how mobile phone users become disassociated with their physical space as they turn their attention to the physically absent but communicatively present other. In a way, blurring the boundaries between public and private space can be a form of coordination and even multitasking—that is, interacting with both co-present and absent others at the same time, or engaging in what would otherwise be considered private or even intimate conversation while passing through or occupying public space.

Indeed, Rule (2002, p. 253) remarks how public use of mobile phones breaks down boundaries of a space as "distinct and protected milieu," where, potentially, "all sorts of relationships, milieus and institutions will lose their distinctive character." Baron (2008) mentions a survey by Sprint (2004) concluding that 50% of their study respondents felt unimportant when a face-to-face communication partner answered a mobile phone. Rice and Katz's analysis of a U.S. nationally representative survey found that two-thirds (of 1,094 respondents) had seen someone be thoughtless of others while using a cell phone (2003b). Two-thirds of those provided an example: driving and talking (47.0%), talking to someone [on the phone] while with someone else (17.0%), using a phone in a public place (10.7%), talking in a restaurant (9.8%), talking too loud (6.4%), or having a cell phone go off at the movies (4.7%).

### Engaging Privacy and Surveillance

Applying the more familiar concern about social control in mediated environments, people are increasingly concerned about online privacy and surveillance (Fox & Lewis, 2001; Klosek, 2000; Yao, Rice, & Wallis, 2007). Many have proposed that ICTs can be a form of Bentham's proposed Panopticon, where all prisoners can be observed at once by an unseen guard, no prisoner can see or hear each other, and prisoners do not know the extent or purpose of any information collected. (In truth, however, Steadman (2007) shows that Bentham's prison design was highly impractical and even counter-productive from a surveillance perspective, and few were ever actually built.) Crucial to the original point of the Panopticon is that, because the physical and social structure provides the *potential of unobserved* observation, the knowledge that one *might* be gazed upon creates self-generated control and discipline. Foucault (1977) argued that technologies also can be used as disciplinary devices through regulation and observation, and others have noted that users are profiled or sorted by commercial entities into more or less valuable sets of consumers, which may be used for marketing to, redlining out, or controlling of those users (Fernback, 2007; Gandy, 1993; Huberman, 2001; Lessig, 1999).

Panoptic surveillance includes much more pervasive, subtle, inter-related, and continuous aspects than "just" recording and obtaining personal information and location. Elmer (2003), for example, argues that precisely because of the "decentered and networked aspects of information technologies" (p. 231), even the concept of consumer "choice" is highly shaped and monitored, and often consists of appearing to provide rewards for participating in having one's data and behaviors monitored, packaged, and resold. Computer-based ICTs are complex and multi-layered, so most users are unaware of the potential for monitoring and observation through collection of personal data and usage patterns, and the sharing or sale of this information to subsequent organizations (Dunkels, 2009; Lyon, 2001). Castells (2001) claims that users are unknowing prisoners of ICT architectures.

Yet more and more people are providing information about their social connectedness in ways that foster greater social control over them by others. Users, especially of IM buddy lists and mobile phone address books, each *want* to be in the center of the network, *want* others to be observing them, and *want* others to know which others are observing the self as well as the others. As discussed in the sections on identity and display, this self-display seems fundamental to the human condition. Indeed, one of the main goals in maintaining connectivity is to *increase* others' surveillance of both one's individual communication as well as one's network of communication—that is, display one's membership. Yet people post and share photographs and text revealing drug use, sexual behaviors, and anti-social attitudes. This may be attractive to one's cohesive social network, but sends quite negative signals to others in the world, especially potential employers, employees, and clients, who may find such postings by accident, through unknown forwarding, or intentionally through Google

or Facebook searches or more sophisticated data mining tools. In this way, the intersection of maintaining and improving one's social connectivity, with the various forms of social control available through new media, inverts the Panopticon. We call this inversion the *Peropticon*—promoting, whether proactively or passively, the exposure of self or observation of self by others *through* the system. Users driven to manage their ritualized social connectivity are now held prisoner to, develop a dependency on, the need to maintain an interconnected network, and both constantly observe others, promote being constantly observed by others, and observe how everyone observes everyone.

One clear distinction from the original conceptualization of the Panopticon is that bounded physical space is no longer a necessary context. Rather than being constrained by the designed observable space, participants choose where, when, and in what form to locate themselves, and how they indicate their presence and behaviors, in various communication spaces. The social connectivity and social control fostered by mobile phone usage accomplishes some of the same processes as the Panopticon, but now largely (but not necessarily) intentionally by users who desire and are rewarded by this projection. The Peropticon can be seen as even more of a generalization of the original Panopticon than Mathiesen's (1997) *synopticism*, *reverse Panopticon*, or *spectatorship*, or Cascio's (2005) *sousveillance*, where many can observe the few or those in charge, such as through mediated public events. It is similar to Cascio's (2005) concept of the *participatory Panopticon*, inspired by the growing uses of the mobile phone camera. He argues that participatory Panopticon is not really "transparency," because this pervasive exposure is primarily passive engagement, not completely under the control, attention, or intention of the user.

The Peropticon concept in no way diminishes or repudiates the ongoing processes of surveillance, exclusion, digital fraud, commercialization of personal information, and even self-regulation associated with communication and information technologies, including mobile phones (Elmer, 2003; Fernback, 2007; Gandy, 1993; Lyon, 2001; Mansell & Collins, 2007). That is, both now occur simultaneously and interdependently.

### Teenagers and College Students

#### Teenagers

*Internet—Privacy.* Nearly half (46%) of a UK survey of a national sample aged 9–19 said that they had given out personal information to someone that they met online (Livingstone & Bober, 2005).

*Mobile Phones—Dependency.* Norwegian youth have said that they would not know what was happening if they did not have a mobile (Haddon, 2004, p. 45), and that they would not have managed a day or even an hour without their mobile phone (Hagen & Wold, 2009). Seventy percent of Danish adolescents

rated the mobile between 8 and 10 points out of 10 on how important they felt their mobile was for them (Stald, 2008). Despite the fact that the mobile allows for asynchronous communication, young people have come to depend on an immediate response when they send an SMS (Haddon, 2004).

*Mobile Phones—Balancing Self and Group.* Teenagers like the Internet, but especially mobile phones, because they provide both control over access to and from one's group (such as by individualized private access at any time) as well as a means for shaping the nature of the communication within one's group and family. Ling (2005a) argues that for adolescents in particular, mobile phones both lower the threshold for social interaction and allow for greater control.

*Mobile Phones—Navigating Family Relations.* Just under two-thirds of 12- to 19-year-old home Internet users in the UK have taken some action to hide their online activities from their parents (Livingstone & Bober, 2005). Strategies of adolescents for reducing parental control and monitoring through mobile phones include saying that the battery was flat or that they did not hear the sound of the call (Ling & Haddon, 2008), or to program the mobile phone to automatically direct a call from one's parents to voice mail (Ling & Yttri, 2002, p. 156). In addition to avoiding control through the landline phone by parents taking messages and knowing who's calling, using a mobile phone connection may also be a sign of consideration, a way to not bother others in the house during a conversation. SMS supports children's ability to communicate with one's friends silently and slightly illicitly in class or at night in bed, and to share group-specific slang and abbreviations (Ling & Yttri, 2005). Interestingly though not surprisingly, while children (decreasingly so as they become older) send text messages and mobile phone calls to their parents, at the same time they tend to feel that calls and texts from their parents are intrusive and monitoring (Christensen, 2009).

*Internet and Mobile Phones—Coordination through Multitasking.* As a way to coordinate demands on their time and attention, young people use several media simultaneously, seemingly without much effort (Holm Sørensen, 2001). A Kaiser foundation reported that 65% of students also do something else while they are studying (Rideout et al., 2005). In a recent large-sample newspaper poll, among those who had homework, 53% of those between ages 12 and 17, and 25% between 18 and 24, did at least one other thing while studying; of the 12- to 17-year-old respondents, 21% said they did at least three other things (Gaither, 2006). The additional activities included music listening (84%), television watching (47%), and movie watching (22%). But the respondents were also engaged in other media activities requiring involvement and interaction, such as phone (32%), Internet (21%), instant messaging (15%), email (13%), text messaging (13%), and video games (6%). A survey of 1,800 web users ages 13–17 asked about their use of Internet outside of school (BurstMedia, 2006). About half (48.9%) said they were doing offline homework while online

(significantly higher for females). Other offline activities included television or movies (33.8%), radio (21.4%), music videos on TV (21.2%), sending mobile phone text messages (20.1%), talking on cell phone (19.0%), talking on landline phone (16.3%), and watching sports on TV (18%).

### College Students

*Internet-Dependency.* When asked about the impact of not having access to the Internet outside of school, over one-quarter (28.9%) of U.S. student survey respondents indicated their day would be ruined (slightly higher for males), 39.8% said their day would not be ruined but would be not as good, and 31.2% said the day would be just fine (BurstMedia, 2006). Katz (2006) conducted a small experiment that asked 82 U.S. college students to not use their cell phones for 48 hours, and report on their life during that time. Only 25 lasted 36 hours, and only 12 were able to last the full time period. Reasons for not lasting the full 48 hours included "because it was too hard, urgent issues arose, people got angry with them, and responsibilities required them to use their phone" (p. 92). Only three said that their life was happier without the mobile phone.

An analysis of college communication majors' autobiographical essays (from 1998 through 2000) revealed that their Internet use had implications for four main social spheres, each with a primary duality: self (active/passive personal development and management of information), family (different abilities and support from old/young members, and staying in touch with members), real communities (participating in and planning for work/school or play even if distant), and virtual communities (expanding one's world view and social memberships, and fostering concerns about utopian/dystopian implications) (McMillan & Morrison, 2006). The respondents indicated various dependencies throughout, but more intensely in the more personal spheres. These included expectations of being continuously connected in order to participate in the community, family or friendships; concerns about addiction; and importance for future careers. U.S. college students use their mobile phones both to manage their own privacy as well as keep in touch with their parents (Aoki & Downes, 2003).

*Internet and Mobile Phones—Coordination through Multitasking.* Baym et al.'s (2004) survey study of U.S. college students also found evidence of multitasking: 56% of face-to-face interactions, 42% of phone interactions, and 27% of online interactions occurred while interacting with at least one other person. The most frequently combined activities were face-to-face (74%), Internet (64%), and phone (61%). In several related studies of American college students' use of new media, Baron (2008) found increased multitasking, through phones, email, IM and mobile phones. Nearly all of students using IM were involved in at least one other activity, including an average of 2.7 ongoing IM conversations (synchronous and asynchronous). Online, the other activities included web-based activities, 70.3%; computer-based media player, 47.5%;

word processing, 38.6%. Offline, they included ftf conversation, 41.1%; eating/drinking, 36.7%; television, 28.5%; telephone, 21.5%. Reasons for multitasking included: the task may require multiple activities to complete; accommodate time demands, allowing more activities to be completed in a given day; resolve psychological condition (e.g., boredom, impatience); unintentional (such as someone calling while the first person is doing some other activity). None of Baron's respondents perceived IM as a stand-alone activity—rather, it was a “background” or “under the radar” activity, used if bored (while waiting for some other person to respond to an IM), if one has a short attention span, simply wants the ability to be in control of the nature of the IM conversation, or wants to maintain a sense of ongoing connection without actual interaction (perpetual contact or connected presence). Nearly three-quarters of a 2008 British national survey (71%) reported multitasking while online, about equal for men and women, and much higher for university students (93%) (Dutton et al., 2009).

*Mobile Phones—Blurring Public and Private Space.* Of Baron's (2008) U.S. college student respondents, a majority of females, but fewer males, were bothered by people using their cell phones in public, mostly due to volume, and also because the places were inappropriate, or private communication could be heard. Some said it was inappropriate if the other person could see or tell you were doing it, and others said it made paying attention to and processing information difficult.

### Conclusion

Overall, then, current and developing features and capabilities of the Internet and mobile phones, culminating in the concept of perpetual contact, shape the influence of forms and nature of usage by young adults, in different contexts ranging from intimate relationships to peer groups to families to universities to countries and cultures, on domains of social connectivity and social control. Table 1.2 summarizes positive and negative implications of the main concepts (perpetual contact, social connectivity, and social control) for Internet and mobile phone use.<sup>3</sup>

Additional new media, such as social networking sites, blogs, microblogs (e.g., twitter), social bookmarking, wikis, virtual reality communities, and online gaming, to the extent that they involve communicating, may well be relevant to the conceptual framework, but are beyond the scope of this chapter. Especially timely would be the implications for connectivity and control of the increasing convergence of media, especially in the form of multimedia and mobile (wireless, phone-based) Internet, allowing for more interdependencies and varieties of media experience (Akiyoshi & Ono, 2008; Anckar & D'Incau, 2002; Bates, Albright, & Washington, 2002; Brown, 2001; Chae & Kim, 2003; Haddon & Vincent, 2009; Kleinman, 2007; Koskinen, 2007; Koskinen, 2008;

Table 1.2 Summary of Main Concepts—Perpetual Contact, Positive and Negative Aspects of Social Connectivity and Social Control—by Internet and Mobile Phone

	<i>PC Internet (email, IM, chat)</i>	<i>Mobile Phone (voice, SMS/text, multimedia)</i>
Perpetual Contact	Pervasive (anywhere with connection) Personal (one or several individual accounts; though can post to and receive from lists with unknown others) Portable (physically located if desktop or Internet café; only if wireless, but laptop or email not always on) Asynchronous (email) and Synchronous (IM, chat) Longer email, short IM	Pervasive (anywhere with connection; easy to share) Personal (one or more individual phone number; individualized ringtones and accessories; typically must know addressee for SMS and multimedia sharing) Portable (carried with person, may be hands-free, with headset) Synchronous and Asynchronous (voice and text) Longer synchronous voice conversations, short asynchronous voice and text messages
Social Connectivity	Supports both wider as well as more focused social interaction	Tends to emphasize close relations, esp. SMS; enables constant potentiality of connection
Constructing Identity	More for older users, work-related, except IM	More for younger users, social-related; part of fashioning personal and social identity; personalizing profiles, ringtones, messages and phone accessories; technology as fashion
Fostering/ changing group and network relations	Exposes users to diverse and broad sets of others; maintains distant relations, including high school friends after going to college; vastly increased access to diverse other people and information; displaces time with family; promotes sharing advice	Reinforces social groupings and cohesion, especially small number of family and friends, even from work; constant awareness and maintenance of membership; ritual engagement
Displaying social relations (membership, sharing)	Distribution lists remind one of membership; IM buddy lists reflect popularity and membership; overload and increasing obligations to respond	Addresses and SMS names reflect popularity and membership; easy to share “gifts” of messages, photos, private signals; mobile phone cost, style, accessories indicates status and membership; increased sense of connectedness and belonging; perpetual obligations to be accessible, and respond

(continued)

Table 1.2 Continued

	<i>PC Internet (email, IM, chat)</i>	<i>Mobile Phone (voice, SMS/text, multimedia)</i>
Social Control	Changes constraints of time and space, challenging traditional controls	Changes social boundaries of presence and contact, providing more of both individual and social control
Developing dependency	Wide range of sources to keep up with; expectations of response timeliness; addiction and abuse; loss of access would ruin or harm day	Need to be constantly interacting with group; easy to integrate with, but also disrupt, daily activities; drawn away from focus on present others; cannot manage without phone
Balancing self and group	Reducing status differentials through bypassing structures, informal writing	Ring tones to identify and prioritize callers; tensions between access vs. exposure; texting makes one more available while maintaining independence
Managing coordination and multi-tasking	Asynchronicity allows response prioritization and timing; distribution lists spread awareness; multiple IM conversations; multitasking with TV, music	Iterative convergent micro- and hyper-coordination of schedules, interactions; portability allows more multitasking; tensions between co-present and remote others
Navigating family relations	Checking in on family from work via email; isolating as well as joint use	Allows freedom as well as attempts at parental control; develop excuses for not answering calls from parents; crossing traditional local, gender, and ethnic boundaries through SMS
Blurring public and private space	Wireless laptops, Internet cafes, create personalized spaces	Private communications heard and seen in public space; shifting of interactions between public and private space
Engaging privacy/surveillance	Online monitoring and surveillance, re-use of personal data and usage patterns; posting one's thoughts and daily activities online	Constant inspections by others of user's responsiveness, membership; user's desire to be seen and observed; greater presence in public sphere with less engagement

Nysveen, Pedersen, & Thorbjornsen, 2005; Rice & Katz, 2008; Runnel, Prulmann-Vengerfeldt, & Keller, 2006; Strocchi, 2003; Wei, 2008; Wirth et al., 2008). For example, in Japan, "PC email is exchanged with psychologically and geographically distant friends, whereas mobile email is exchanged with more intimate friends" (p. 53), and "mobile Internet use has more in common

with time-enhancing home appliances such as the telephone, while PC Internet use has more in common with the time-displacing technology of TV" (p. 57) (Ishii, 2004; see also Ishii, 2006).

Extensions of this research focus would analyze what specific features and uses of these media, associated with pervasiveness, personalness and portability, in what social, national and cultural contexts, reinforce or change forms of social connectivity and social control. Such a concern would require both quantitative and qualitative approaches, a deeper understanding of the nature of each medium's characteristics (a media ecology approach), how media become domesticated (both within and outside households), and how users, their context, and the technologies influence each other (reinvention, technology duality) (Berker, Hartmann, Punie, & Ward, 2006; Johnson & Rice, 1987; Meyrowitz, 1985; Orlikowski, 1992; Postman, 1993). Related to this focus on contextuality would be a deeper investigation of how media convergence, social connectivity, and social control influence each other.

#### Acknowledgements

Thanks to Katy Pearce of UCSB for help in providing references and article summaries, and to Miriam Metzger of UCSB for thoughtful comments on a much earlier draft. Thanks to four anonymous reviewers for their insightful critiques, and to Editor Charles Salmon for his encouragement and suggestions.

#### Notes

1. Throughout, we make the simple distinction between mediated communication (human communication between two or more participants occurring through one of these technologies) and unmediated communication (direct face-to-face, or "co-present" interaction in the same place and same time).
2. The chapter does not attempt to analyze or summarize the wide research on influences on adoption of these media, such as from a diffusion of innovations perspective (Rice & Webster, 2002; Rogers, 2003) or a uses and gratifications perspective (even though several studies cited here do so: Campbell, 2007; Flanagan & Metzger, 2001; Leung & Wei, 2000; Livingstone & Bober, 2005; Lonkila & Gladarev, 2008; Vincent & Basil, 1997; and Wei, 2008).
3. Any review of a large amount of research is necessarily limited in terms of conceptual scope and simple page length. A different version, or another dimension, of this review would discuss and analyze the implications of the widely varying methodologies used to generate the various usage statistics and patterns noted throughout. The studies cited range from surveys to controlled experiments, from ethnographies to personal interviews, from the United States to Scandinavia and India, using a wide range of measures and evidence. While quantitative meta-analyses are very useful, they require studies that report effect sizes across somewhat similar measures. The main approach of this chapter was to assemble and integrate just such a range to illuminate the diversity of social connectivity and social control implications. This approach necessarily hides distinctions between as well as commonalities across results due to different methods.

## References

- Akiyoshi, M., & Ono, H. (2008). The diffusion of mobile Internet in Japan. *The Information Society, 24*(5), 292–303.
- Anckar, B., & D'Incau, D. (2002). Value creation in mobile commerce: Findings from a consumer survey. *Journal of Information Technology Theory and Application, 4*, 43–64.
- Aoki, K., & Downes, E. J. (2003). An analysis of young people's use of and attitudes toward cell phones. *Telematics and Informatics, 20*, 349–364.
- Baron, N. (2008). Adjusting the volume: Technology and multitasking in discourse control. In J. E. Katz (Ed.), *Handbook of mobile communication studies* (pp. 177–193). Cambridge, MA: The MIT Press.
- Bates, B., Albright, K., & Washington, K. (2002). Not your plain old telephone: New services & new impacts. In C. Lin & D. Atkin (Eds.), *Communication technology & society* (pp. 91–124). Cresskill, NJ: Hampton Press.
- Baym, N., Zhang, Y., & Lin, M. (2004). Social interactions across media: Interpersonal communication on the Internet, telephone and face-to-face. *New Media & Society, 6*(3), 299–318.
- Bell, G. (2005). The age of the thumb: A cultural reading of mobile technologies from Asia. In P. Glotz & S. Bertschi (Eds.), *Thumb culture: Social trends and mobile phone use* (pp. 67–87). Bielefeld, Germany: Transcript Verlag.
- Berker, T., Hartmann, M., Punie, Y., & Ward, K. (Eds.). (2006). *Domestication of media and technology*. Berkshire, UK: Open University Press.
- Bluedorn, A. C. (2002). *The human organization of time*. Stanford, CA: Stanford University Press.
- Boneva, B. S., Quinn, A., Kraut, R. E., Kiesler, S., & Shklovski, I. (2006). Teenage communication in the instant messaging era. In R. E. Kraut, N. Brynin, & S. Kiesler (Eds.), *Computers, phones, and the Internet: Domesticating information technology* (pp. 201–218). Oxford: Oxford University Press.
- Brown, B. (2001). Studying the use of mobile technology. In B. Brown, N. Green, & R. Harper (Eds.), *Wireless world* (pp. 3–15). London: Springer.
- Brown, J. D., & Cantor, J. (2000). An agenda for research on youth and the media. *Journal of Adolescent Health, 27*(2), 2–7.
- BurstMedia. (2006). *Online insights, 6*(4). Retrieved May 1, 2006, from [www.burst-media.com/assets/newsletter/items/2006\\_05\\_01.pdf](http://www.burst-media.com/assets/newsletter/items/2006_05_01.pdf)
- Campbell, S. W. (2007). A cross-cultural comparison of perceptions & uses of mobile telephony. *New Media & Society, 9*, 343–363.
- Caronia, L., & Caron, A. H. (2004). Constructing a specific culture: Young people's use of the mobile phone as a social performance. *Convergence, 10*, 28–61.
- Cascio, J. (2005, May 7). The rise of the participatory panopticon. <http://www.world-changing.com/archives/002651.html>
- Castells, M. (2001). *The Internet galaxy: Reflections on the Internet, business and society*. New York: Oxford University Press.
- Castells, M., Fernandez-Ardevol, M., Qiu, J. L., & Sey, A. (2006). *Mobile communication and society: A global perspective*. Cambridge, MA: The MIT Press.
- CBC News. (2009, June 15). Younger Canadians lead migration away from land lines: StatsCan. Retrieved from <http://www.cbc.ca/technology/story/2009/06/15/cell-phones-statistics-canada-survey.html?ref=rss>
- Chae, M., & Kim, J. (2003). What's so different about the mobile Internet? *Communications of the ACM, 46*(12), 240–247.
- Christensen, T. H. (2009). 'Connected presence' in distributed family life. *New Media & Society, 11*(3), 433–451.
- Cooley, H. R. (2004). It's all about the fit: The hand, the mobile screenic device and tactile vision. *Journal of Visual Culture, 3*(2), 133–155.
- Cummings, J., Lee, J., & Kraut, R. E. (2006). Communication technology and friendship during the transition from high school to college. In R. E. Kraut, M. Brynin, & S. Kiesler (Eds.), *Computers, phones and the Internet: Domesticating information technology* (pp. 265–278). New York: Oxford University Press.
- van Dijk, Jan A. G. M. (2005). *The deepening divide: Inequality in the information society*. Thousand Oaks, CA: Sage.
- Donath, J. & boyd, d. (2004). Public displays of connection. *BT Technology Journal, 22*(4), 71–82.
- Donner, J. (2007). The rules of beeping: Exchanging messages via intentional "missed calls" on mobile phones. *Journal of Computer-Mediated Communication, 13*(1), article 1. Retrieved from <http://jcmc.indiana.edu/vol13/issue1/donner.html>
- Donner, J., Rangaswamy, N., Steenson, M. W., & Wei, C. (2008). 'Express yourself' and 'stay together': The middle-class Indian family. In J. E. Katz (Ed.), *Handbook of mobile communication studies* (pp. 325–337). Cambridge, MA: The MIT Press.
- Dunkels, E. (2009). *Vad gör unga på nätet?* [What are adolescents doing on the net?] Malmö, Sweden: Gleerups.
- Durkheim, E. (1995). *The elementary forms of religious life*. New York: Free Press. (Original work published 1912)
- Dutton, W. H., Helsper, E. J., & Gerber, M. M. (2009). The Internet in Britain: 2009. Oxford: Oxford Internet Institute. Retrieved from <http://digital-scholarship.org/digitalkoans/2009/06/24/the-internet-in-britain-2009/>
- Elmer, G. (2003). A diagram of panoptic surveillance. *New Media & Society, 5*(2), 231–247.
- Fernback, J. (2007). Selling ourselves? Profitable surveillance and online communities. *Critical Discourse Studies, 4*(3), 311–330.
- Flanagin, A., & Metzger, M. (2001). Internet use in the contemporary media environment. *Human Computer Research, 27*, 153–181.
- Foucault, M. (1977). *Discipline and punish: Birth of the prison* (A. Sheridan, Trans.). New York: Pantheon.
- Fox, S., & Lewis, O. (2001, April 2). *Fear of online crime: Americans support FBI interception of criminal suspects' email and new laws to protect online privacy*. Washington, DC: Pew Internet & American Life Project. Retrieved from <http://www.pewinternet.org>
- Gaither, C. (2006, August 11). They do it all while studying: At homework time, many students also are playing games, e-mailing friends and watching TV. Scientists say that is bad for learning. *Los Angeles Times*. Retrieved from <http://www.latimes.com/business/la-fi-pollhomework11aug11,0,7979479.story?coll=la-home-business>
- Gandy, O. (1993). *The panoptic sort*. Boulder, CO: Westview Press.
- Gergen, K. (2008). Mobile communication and the transformation of the democratic process. In J. E. Katz (Ed.), *Handbook of mobile communication studies* (pp. 297–309). Cambridge, MA: The MIT Press.

- Glutz, P., & Bertschi, S. (2005). People, mobiles and society. Concluding insights from an international expert survey. In P. Glutz, S. Bertschi, & C. Locke (Eds.), *Thumb culture: The meaning of mobile phones for society* (pp. 259–285). New Brunswick, NJ: Transaction Publishers.
- Goffman, E. (1967). *Interaction rituals: Essays on face-to-face behavior*. New York: Pantheon.
- Goggin, G. (2006). *Cell phone culture: Mobile technology in everyday life*. New York: Routledge.
- de Gournay, C. (2002). Pretense of intimacy in France. In J. E. Katz & M. Aakhus (Eds.), *Perpetual contact* (pp. 193–206). Cambridge, UK: Cambridge University Press.
- Green, N. (2002). On the move: Technology, mobility, and the mediation of social time and space. *The Information Society*, 18, 281–292.
- Grinter, R. E., & Eldridge, M. A. (2001). y do tngers luv 2 txt msg? In *Proceedings of the 7th European Conference on Computer-Supported Cooperative Work (ECSCW'01)* (pp. 219–238). Dordrecht, The Netherlands: Kluwer Academic Publishers.
- Grinter, R. E., & Palen, L. (2002). Instant messaging in teen life. In *Proceedings of CSCW'02* (pp. 21–30). New York: ACM Press.
- Gross, E., Juvonen, J., & Gable, S. (2002). Internet use and well-being in adolescence. *Journal of Social Issues*, 58, 75–90.
- Gyorgy, P. (2003). Virtual distance. In K. Nyiri (Ed.), *Mobile communication: Essays on cognition and community* (pp. 97–115). Vienna: Passagen Verlag.
- Haddon, L. (2004). *Information and communication technology in everyday life: A concise introduction and research guide*. Oxford: Berg.
- Haddon, L., & Vincent, J. (2009). Children's broadening use of mobile phones. In G. Goggin & L. Hjorth (Eds.), *Mobile technologies: From telecommunication to media* (pp. 37–49). London: Routledge.
- Hafner, K. (2009, May 25). Texting may be taking a toll. *New York Times*. Retrieved from [http://www.nytimes.com/2009/05/26/health/26teen.html?\\_r=1&emc=eta1](http://www.nytimes.com/2009/05/26/health/26teen.html?_r=1&emc=eta1)
- Hagen, I. (2007). 'We can't just sit the whole day watching TV': Negotiations concerning media use among youngsters and their parents. *Young: Nordic Journal of Youth Research*, 15(4), 369–393.
- Hagen, I. & Wold, T. (2009). *Mediegenerasjonen. Barn og unge i det nye medielandskapet* [The media generation: Children and young people in the new media landscape]. Oslo, Norway: Samlaget.
- Hargittai, E. (2002). Second-level digital divide: Differences in people's online skills. *First Monday*, 7(4). Retrieved April 10, 2008, from <http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/942>
- Harper, R. (2010). *Texture: Human expression in the age of communications overload*. Cambridge, MA: The MIT Press.
- Harper, R., & Hamill, L. (2005). Kids will be kids: The role of mobiles in teenage life. In L. Hamill, & A. Lasen (Eds.), *Mobile world: Past, present and future* (CSCW series; pp. 61–72). London: Springer-Verlag.
- Henke, L. L. (1985). Perceptions and use of news media by college students. *Journal of Broadcasting & Electronic Media*, 29(4), 431–436.
- Hernwall, P. (2003). *Barn@com — att växa upp i det nya mediasamhället* [children@com—Growing up in the new media society]. Stockholm, Sweden: HLS Förlag.
- Holm Sørensen, B. (2001). Børns hverdagsliv med de nye medier [Children's everyday lives with the new media]. In B. Holm Sørensen, L. Audon, & B. R. Olesen (Eds.), *Det hele kører parallelt. De nye medier i børns hverdagsliv* [It's all running parallel: The new media in children's everyday lives] (pp. 9–47). Copenhagen, Denmark: Gads Förlag.
- Holmes, M., Papper, R. A., Popovich, M. N., & Bloxham, M. (2005). *Middletown media studies II: Concurrent media exposure*. Muncie, IN: Ball State University Center for Media Design.
- Howard, P. N., Anderson, K., Busch, L., & Nafus, D. (2009). Sizing up information societies: Toward a better metric for the cultures of ICT adoption. *The Information Society*, 25, 1–9.
- Huberman, B. (2001). *The laws of the web: Patterns in the ecology of information*. Cambridge, MA: The MIT Press.
- Humphreys, I. (2005). Cellphones in public: Social interactions in a wireless era. *New Media & Society*, 7(6), 810–833.
- Igarashi, T., Takai, J., & Yoshida, T. (2005). Gender differences in social network development via mobile phone text messages: A longitudinal study. *Journal of Social and Personal Relationships*, 22, 691–713.
- International Telecommunications Union. (2009a). Internet usage by region. Retrieved April 20, 2009, from [http://www.itu.int/ITU-D/icteye/Reporting/ShowReportFrame.aspx?ReportName=/WTI/InformationTechnologyPublic&RP\\_intYear=2008&RP\\_intLanguageID=1](http://www.itu.int/ITU-D/icteye/Reporting/ShowReportFrame.aspx?ReportName=/WTI/InformationTechnologyPublic&RP_intYear=2008&RP_intLanguageID=1)
- International Telecommunications Union. (2009b). Mobile usage by region. Retrieved April 20, 2009, from [http://www.itu.int/ITU-D/icteye/Reporting/ShowReportFrame.aspx?ReportName=/WTI/CellularSubscribersPublic&RP\\_intYear=2008&RP\\_intLanguageID=1](http://www.itu.int/ITU-D/icteye/Reporting/ShowReportFrame.aspx?ReportName=/WTI/CellularSubscribersPublic&RP_intYear=2008&RP_intLanguageID=1)
- Internet World Stats. (2007). Usage and population statistics. Retrieved October 24, 2007, from <http://internetworldstats.com>
- Internet World Stats. (2009). Usage and population statistics. Retrieved April 20, 2009, from <http://www.internetworldstats.com>
- Ishii, K. (2004). Internet use via mobile phone in Japan. *Telecommunications Policy*, 28, 43–58.
- Ishii, K. (2006). Implications of mobility: The uses of personal communication media in everyday life. *Journal of Communication*, 56(2), 346–365.
- Ito, M., Horst, H., Bittanti, M., boyd, d., Herr-Stephenson, B., Lange, P. G., et al. (2008, November). *Living and learning with new media: Summary of findings from the digital youth project*. The John D. and Catherine T. MacArthur Foundation Reports on Digital Media and Learning. Retrieved April 20, 2009, from [www.macfound.org/atf/cf/%7BB0386CE3-8B29-4162-8098-E466FB856794%7D/DML\\_ETH-NOG\\_WHITEPAPER.PDF](http://www.macfound.org/atf/cf/%7BB0386CE3-8B29-4162-8098-E466FB856794%7D/DML_ETH-NOG_WHITEPAPER.PDF)
- Ito, M., & Okabe, D. (2005). Technosocial situations: Emergent structuring of mobile e-mail use. In M. Ito, D. Okabe, & M. Matsuda (Eds.), *Personal, portable, pedestrian* (pp. 257–273). Cambridge, MA: The MIT Press.
- Ito, M., Okabe, D., & Matsuda, M. (Eds.). (2005). *Personal, portable, pedestrian*. Cambridge, MA: The MIT Press.
- Jenson, S. (2005). Default thinking: Why consumer products fail. In R. Harper, L. Palen, & A. Taylor (Eds.), *The inside text: Social perspectives on SMS in the mobile age* (pp. 1–19). New York: Springer.
- Johnson, B., & Rice, R. E. (1987). *Managing organizational innovation: The evolution from word processing to office information systems*. New York: Columbia University Press.

- Kalba, K. (2008). *The global adoption and diffusion of mobile phones*. Cambridge, MA: Harvard University Program on Information Resources Policy. Retrieved from [http://www.pirp.harvard.edu/pubs\\_pdf/kalba/kalba-p08-1.pdf](http://www.pirp.harvard.edu/pubs_pdf/kalba/kalba-p08-1.pdf)
- Katz, J. E. (2006). *Magic in the air: Mobile communication and the transformation of social life* (pp. 87–101). New Brunswick, NJ: Transaction Publishers.
- Katz, J. E., & Aakhus, M. (2002a). Framing the issues. In J. E. Katz & M. Aakhus (Eds.), *Perpetual contact: Mobile communication, private talk, public performance* (pp. 1–13). Cambridge: Cambridge University Press.
- Katz, J. E., & Aakhus, M. (2002b). Conclusion: Making meaning of mobiles: A theory of Apparategeist. In J. E. Katz & M. Aakhus (Eds.), *Perpetual contact: Mobile communication, private talk, public performance* (pp. 301–318). Cambridge: Cambridge University Press.
- Katz, J. E., & Rice, R. E. (2002). *Social consequences of Internet use: Access, involvement and interaction*. Cambridge, MA: The MIT Press.
- Katz, J. E., Rice, R. E., Acord, S., Dasgupta, K., & David, K. (2004). Personal mediated communication and the concept of community in theory and practice. In P. Kalbfleisch (Ed.), *Communication Yearbook 28* (pp. 315–370). Mahwah, NJ: Erlbaum.
- Katz, J. E., & Sugiyama, S. (2006). Mobile phones as fashion statements: Evidence from student surveys in the U.S. and Japan. *New Media & Society*, 8, 321–337.
- Kennedy, T. L. M., Smith, A., Wells, A. T., & Wellman, B. (2008, October). *Networked families*. Pew Internet & American Life Project. Retrieved from <http://www.pewinternet.org/Reports/2008/Networked-Families.aspx>
- Kim, H., Kim, G. J., Park, H. W., & Rice, R. E. (2007). Configurations of relationships in different media: FtF, Email, Instant Messenger, Mobile Phone, and SMS. *Journal of Computer-Mediated Communication*, 12(4). doi: 10.1111/j.1083-6101.2007.00369.x
- Kleinman, S. (2007). *Displacing place: Mobile communication in the twenty-first century*. New York: Peter Lang.
- Klosek, J. (2000). *Data privacy in the information age*. Westport, CT: Quorum.
- Koskinen, I. (2007). *Mobile media in action*. New Brunswick, NJ: Transaction Publishers.
- Koskinen, I. (2008). Mobile multimedia: Uses and social consequences. In J. E. Katz (Ed.), *Handbook of mobile communication studies* (pp. 241–255). Cambridge, MA: The MIT Press.
- Lee, S. J. (2009). Online communication and adolescent social ties: Who benefits more from Internet use? *Journal of Computer-Mediated Communication*, 14, 509–531.
- Lenhart, A., Kahne, J., Middaugh, E., Macgill, A. R., Evans, C., & Vitak, J. (2008, September 16). *Teens, video games and civics*. Retrieved September 17, 2008, from <http://www.pewinternet.org/Reports/2008/Teens-Video-Games-and-Civics.aspx>
- Lenhart, A., Madden, M., & Hitlin, P. (2005, July 27). *Teens and technology: Youth are leading the transition to a fully wired and mobile nation*. Retrieved September 17, 2008, from <http://www.pewinternet.org/Reports/2005/Teens-and-Technology.aspx>
- Lessig, L. (1999). *Code and other laws of cyberspace*. New York: Basic Books.
- Leung, L. (2007). Stressful life events, motives for Internet use, and social support among digital kids. *CyberPsychology & Behavior*, 10(2), 204–214.
- Leung, L. (2008). Linking psychological attributes to addiction and improper use of the mobile phone among adolescents in Hong Kong. *Journal of Children & Media*, 2(2), 93–113.
- Leung, L., & Wei, R. (2000). More than just talk on the move: A uses and gratification study of the cellular phone. *Journalism & Mass Communication Quarterly*, 77(2), 308–320.
- Licoppe, C. (2004). 'Connected' presence: The emergence of a new repertoire for managing social relationships in a changing communication technoscape. *Environment and Planning D: Society and Space*, 22(1), 135–156.
- Licoppe, C., & Smoreda, Z. (2005). Are social networks technologically embedded? How networks are changing today with changes in communication technology. *Social Networks*, 27(4), 317–335.
- Liestøl, G., & Rasmussen, T. (2007). *Digitale medier. En innføring* [Digital media. An introduction]. Oslo: Universitetsforlaget.
- Ling, R. (2004). *The mobile connection*. Frankfurt, Germany: Elsevier.
- Ling, R. (2005a). Mobile communications vis-à-vis teen emancipation, peer group integration and deviance. In R. Harper, A. Taylor, & L. Palen (Eds.), *The inside text: Social perspectives on SMS in the mobile age* (pp. 175–189). New York: Springer.
- Ling, R. (2005b). The socio-linguistics of SMS: An analysis of SMS use by a random sample of Norwegians. In R. Ling & P. Pedersen (Eds.), *Mobile communications: Renegotiation of the social sphere* (pp. 335–349). London: Springer.
- Ling, R. (2008a). The mediation of ritual interaction via the mobile telephone. In J. E. Katz (Ed.), *Handbook of mobile communication studies* (pp. 165–176). Cambridge, MA: The MIT Press.
- Ling, R. (2008b). *New tech, new ties: How mobile communication is reshaping social cohesion*. Cambridge, MA: The MIT Press.
- Ling, R., & Haddon, L. (2003). Mobile telephony, mobility and the coordination of everyday life. In J. Katz (Ed.), *Machines that become us* (pp. 245–266). New Brunswick, NJ: Transaction Publishers.
- Ling, R., & Haddon, L. (2008). Children, youth and the mobile phone. In K. Drotner & S. Livingstone (Eds.), *The international handbook of children, media and culture* (pp. 137–151). London: Sage.
- Ling, R., & Julsrud, T. (2005). The development of grounded genres in multimedia messaging systems (MMS) among mobile professionals. In K. Nyíri (Ed.), *The global and the local in mobile communication* (pp. 329–338). Vienna: Passagen Verlag.
- Ling, R., & Yttri, B. (2002). Hyper-coordination via mobile phones in Norway. In J. E. Katz & M. Aakhus (Eds.), *Perpetual contact: Mobile communication, private talk, public performance* (pp. 139–169). Cambridge: Cambridge University Press
- Ling, R., & Yttri, B. (2005). Control, emancipation, and status: The mobile telephone in teens' parental and peer relationships. In R. E. Kraut, M. Brynin & S. Kiesler (Eds.), *Computers, phones and the Internet: Domesticating information technology* (pp. 219–234). New York: Oxford University Press.
- Livingstone, S. (2002). *Young people and new media*. London: Sage.
- Livingstone, S., & Bober, M. (2005). *UK children go online: Final report of key project findings*. London: The London School of Economics and Political Science, Department of Media and Communications. Retrieved November 14, 2009, from [http://www.lse.ac.uk/collections/children-go-online/UKCGO\\_Final\\_report.pdf](http://www.lse.ac.uk/collections/children-go-online/UKCGO_Final_report.pdf)
- Livingstone, S., & Bovill, M. (2001). *Children and their changing media environment. A European comparative study*. London: Erlbaum.
- Lonkila, M., & Gladarev, B. (2008). Social networks and cellphone use in Russia: Local consequences of global communication technology. *New Media & Society*, 10, 273–293.

- Lyon, D. (2001). *Surveillance society: Monitoring everyday life*. Buckingham, UK: Open University Press.
- Macgill, A. R. (2007, October 24). *Parent and teenager Internet use*. Pew Internet & American Life Project. Retrieved October 25, 2007, from <http://www.pewinternet.org/Reports/2007/Parent-and-Teen-Internet-Use.aspx>
- Mansell, R., & Collins, B. S. (Eds.). (2007). *Trust and crime in information societies*. Coventry, UK: Edward Elgar.
- Mante-Meijer, E., & Haddon, L. (2001). *Checking it out with the people — ICT markets and users in Europe*, Eurescom Project Report EDOM 0161-903. Eurescom project P903. Heidelberg, Germany: Eurescom.
- Mathiesen, T. (1997). The viewer society: Michel Foucault's "Panopticon Revisited". *Theoretical Criminology*, 1(2), 215–234.
- Matsuda, M. (2005). Mobile communication and selective sociality. In M. Ito, D. Okabe, & M. Matsuda (Eds.), *Personal, portable, pedestrian* (pp. 123–142). Cambridge, MA: The MIT Press.
- McMillan, S. J., & Morrison, M. (2006). Coming of age with the Internet: A qualitative exploration of how the Internet has become an integral part of young people's lives. *New Media and Society*, 8(1), 73–95.
- Mesch, G., & Talmud, I. (2008). Cultural differences in communication technology use: Adolescent Jews and Arabs in Israel. In J. E. Katz (Ed.), *Handbook of mobile communication studies* (pp. 313–324). Cambridge, MA: The MIT Press.
- Meyrowitz, J. (1985). *No sense of place: the impact of electronic media on social behavior*. New York: Oxford University Press.
- Miller, M. (2001). A snapshot of the Class of 2001. *Public Relations Tactics*, 8(9), 21–22.
- Nathanson, A. (2001). Parents versus peers: Exploring the significance of peer mediation of antisocial television. *Communication Research*, 28, 251–274.
- Norris, P. (2001). *Digital divide: Civic engagement, information poverty, and the Internet worldwide*. Cambridge, UK: Cambridge University Press.
- Nysveen, H., Pedersen, P. E., & Thorbjørnsen, H. (2005). Intentions to use mobile services: Antecedents and cross-service comparisons. *Journal of the Academy of Marketing Science*, 33, 330–346.
- Oksman, V., & Turtianen, J. (2004). Mobile communication as a social stage: Meanings of mobile communication in everyday life among teenagers in Finland. *New Media & Society*, 6(3), 391–339.
- Orlikowski, W. (1992). The duality of technology: Rethinking the concept of technology in organizations. *Organization Science*, 3(3), 398–427.
- Østergaard Madsen, C., & Stald, G. (Eds.). (2005). *Mobile medier — Mobile unge* [Mobile media — mobile youth]. Copenhagen, Denmark: Formidlingsrapport. Film & Medievitenskap, København Universitet.
- Ozcan, Y. Z., & Kocak, A. (2003). A new or status symbol? Use of cellular telephones in Turkey. *European Journal of Communication*, 18, 241–254.
- Pew Internet & American Life Project. (2002). *The Internet goes to college: How students are living in the future*. Retrieved November 15, 2009, from <http://www.pewinternet.org/Reports/2002/The-Internet-Goes-to-College.aspx>
- Pew Internet & American Life Project. (2007, August 1). *U.S. lags behind: Why it will be harder to close the broadband divide*. Retrieved October 19, 2007, from [http://www.pewinternet.org/pdfs/Broadband\\_Commentary.pdf](http://www.pewinternet.org/pdfs/Broadband_Commentary.pdf)
- Postman, N. (1993). *Technopoly: The surrender of culture to technology*. New York: Vintage.
- Quan-Haase, A. (2007). University students' local and distant social ties: Using and integrating modes of communication on campus. *Information, Communication & Society*, 10(5), 671–693.
- Reid, D., & Reid, F. (2005). Textmates and text circles: Insights into the social ecology of SMS text messaging. In L. Hamill & A. Lasen (Eds.), *Mobile world: Past, present and future* (pp. 105–118). London: Springer-Verlag.
- Rice, R. E. (1987). Computer-mediated communication and organizational innovation. *Journal of Communication*, 37(4), 65–94.
- Rice, R. E., & Katz, J. E. (2003a). Comparing Internet and mobile phone usage: Digital divides of usage, adoption, and dropouts. *Telecommunications Policy*, 27(8/9), 597–623.
- Rice, R. E., & Katz, J. E. (2003b). Mobile discourtesy: National survey results on episodes of convergent public and private spheres. In K. Nyíri (Ed.), *Mobile democracy: Essays on society, self and politics* (pp. 53–64). Vienna: Passagen Verlag.
- Rice, R. E., & Katz, J. E. (2008). Assessing new cell phone text and video services. *Telecommunications Policy*, 32(7), 455–467.
- Rice, R. E., & Webster, J. (2002). Adoption, diffusion and use of new media in organizational settings. In C. Lin & D. Atkin (Eds.), *Communication technology and society* (pp. 191–227). Cresskill, NJ: Hampton Press.
- Rideout, V., Roberts, D. F., & Foehr, U. (March, 2005). *Generation M: Media in the lives of 8–18 year olds*. A Kaiser Family Foundation Study. Retrieved April 10, 2005, from <http://www.kaiserfamilyfoundation.org/entmedia/7250.cfm>
- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). New York: Free Press.
- Rule, J. B. (2002). From mass society to perpetual contact: Models of communication technologies in social context. In J. E. Katz & M. Aakhus (Eds.), *Perpetual contact: Mobile communication, private talk, public performance* (pp. 242–254). Cambridge: Cambridge University Press.
- Runnel, P., Pruulmann-Vengerfeldt, P., & Keller, M. (2006). A mobile phone isn't a mobile phone any more: Case study of Estonian mobile phone use practices. In *Proceedings of the 5th conference on cultural attitudes toward technology and communication* (pp. 606–621). Retrieved November 22, 2006, from <http://www.jrnl.ut.ee/~pille/PhD/5-VI-runnel-pruulmann-vengerfeldt-keller.pdf>
- Seepersad, S. (2004). Coping with loneliness: Adolescent online and offline behavior. *CyberPsychology & Behavior*, 7, 35–39.
- Skog, B. (2002). Mobiles and the Norwegian teen: Identity, gender and class. In J. E. Katz & M. Aakhus (Eds.), *Perpetual contact: Mobile communication, private talk, public performance* (pp. 255–273). Cambridge: Cambridge University Press.
- Smoreda, Z., & Thomas, F. (2001). Social networks and residential ICT adoption and use. In *Proceedings of EURESCOM Summit 2001*. Retrieved November 14, 2009, from [http://www.eurescom.de/~public-web-deliverables/P900-series/P903/ICT\\_use\\_Smoreda.pdf](http://www.eurescom.de/~public-web-deliverables/P900-series/P903/ICT_use_Smoreda.pdf)
- Spink, A., Cole, C., & Waller, M. (2008). Multitasking behavior. In B. Cronin (Ed.), *Annual Review of Information Science and Technology*, 42, 93–118. Medford, NJ: Information Today, Inc.
- Sprint. (2004, July 7). *Sprint survey finds nearly two-thirds of Americans are uncomfortable overhearing wireless conversations in public*. Retrieved December 26, 2005, from [http://www2.sprint.com/mr/news\\_dtl.do?id=2073](http://www2.sprint.com/mr/news_dtl.do?id=2073)

- Stald, G. (2008). Mobile identity: Youth, identity, and mobile communication media. In D. Buckingham (Ed.), *Youth, identity and digital media* (pp. 143–163). Boston: The MIT Press.
- Steadman, P. (2007). The contradictions of Jeremy Bentham's panopticon penitentiary. *Journal of Bentham Studies*, 9. Retrieved July 6, 2007, from [http://www.ucl.ac.uk/Bentham-Project/journal/Steadman\\_panopt.htm](http://www.ucl.ac.uk/Bentham-Project/journal/Steadman_panopt.htm)
- Strocchi, G. (2003). The next frontier of technology: Awaiting UMTS. In L. Fortunati, J. E. Katz, & R. Riccini (Eds.), *Mediating the human body: Technology, communication & fashion* (pp. 133–138). Mahwah, NJ: Erlbaum.
- Taylor, A. S., & Harper, R. (2003). The gift of the gab?: A design oriented sociology of young people's use of mobiles. *Journal of Computer Supported Cooperative Work*, 12(3), 267–296.
- Tichenor, P. J., Donohue, G. A., & Olien, C. N. (1970). Mass media flow and differential growth in knowledge. *Public Opinion Quarterly*, 34, 159–170.
- Tønnessen, E. S. (2007). *Generasjon.com. Mediekultur blant barn og unge* [Generation.com. Media culture among children and adolescents]. Oslo, Norway: Universitetsforlaget.
- Totten, J., Lipscomb, T., Cook, R., & Lesch, W. (2005). General patterns of cell phone usage among college students: A four-state study. *Services Marketing Quarterly*, 26(3), 13–39.
- Turkle, S. (2008). Always-on/Always-on-you: The tethered self. In J. E. Katz (Ed.), *Handbook of mobile communication studies* (pp. 121–137). Cambridge, MA: The MIT Press.
- Vincent, R. C., & Basil, M. D. (1997). College students' news gratifications, media use, and current events knowledge. *Journal of Broadcasting & Electronic Media*, 41(3), 380–392.
- Walther, J. B. (1996). Computer-mediated communication: Impersonal, interpersonal, and hyperpersonal interaction. *Communication Research*, 23, 1–43.
- Wei, C., & Kolko, B. E. (2005). Resistance to globalization: Language & Internet diffusion patterns in Uzbekistan. *The New Review of Multimedia & Hypermedia*, 11, 205–220.
- Wei, R. (2008). Motivations for using the mobile phone for mass communications & entertainment. *Telematics & Informatics*, 25, 36–46.
- Wei, R., & Lo, V-H. (2006). Staying connected while on the move: Cell phone use and social connectedness. *New Media & Society*, 8(1), 53–72.
- Wellman, B. (2001). Physical place and cyberplace: The rise of personalized networking. *International Journal of Urban and Regional Research*, 25(2), 227–252.
- Wirth, W., von Pape, T., & Karnowski, V. (2008). An integrative model of mobile phone appropriation. *Journal of Computer Mediated Communication*, 13, 593–617.
- World Internet Project. (2009). *Summary report*. (13 countries across North America, South America, Europe, Asia, the Middle East, and Oceania). Los Angeles, CA: Center for the Digital Future, Annenberg School for Communication, University of Southern California. Retrieved November 14, 2009, from [http://www.digitalcenter.org/pages/current\\_report.asp?intGlobalId=43](http://www.digitalcenter.org/pages/current_report.asp?intGlobalId=43)
- Yao, M. Z., Rice, R. E., & Wallis, K. (2007). Predicting user concerns about online privacy. *Journal of the American Society for Information Science & Technology*, 58(5), 710–722.
- Yoon, K-W. (2003). Retraditionalizing the mobile: Young people's sociality and mobile phone use in Seoul, South Korea. *European Journal of Cultural Studies*, 6(3), 327–343.
- Yoon, K-W. (2006). Local sociality in young people's mobile communications: A Korean case study. *Childhood*, 13(2), 155–174.