

COMMUNICATION RESEARCH TRENDS



Centre for the Study of Communication and Culture

Volume 34 (2015) No. 4

IN THIS
ISSUE

Smartphones

Paul A. Soukup, S.J.
Santa Clara University

A QUARTERLY REVIEW OF COMMUNICATION RESEARCH

ISSN: 0144-4646

Table of Contents

Smartphones	3
1. Introduction	3
A. Perspectives	3
B. Resources for and approaches to studying smartphones	4
2. Teens and Young People	6
A. Usage	6
B. Smartphones and teen culture	7
C. Risks and parental concerns	8
D. Bullying	10
3. Education	10
A. Classroom education	10
B. Learning support	11
C. Ubiquitous learning	12
4. Business	12
A. Company communication	13
B. Sales	14
C. Marketing	14
5. Journalism	16
A. Reporting and editing	16
B. News audiences	16
C. News apps	17
D. Sustainability of news operations	17
6. Health	18
7. Daily Living	19
A. Interpersonal communication	19
B. Women	20
C. Cultures	20
D. Politics and government	21
E. Creative and cultural life	21
8. Gaming	22
9. Issues	23
A. Privacy	23
B. Politeness	24
C. Digital divide	24
D. Theory	24
10. Conclusion	25
References	26
Added Reading	36
Book Reviews	39

Communication Research Trends
Volume 34 (2015) Number 4
<http://cscsc.scu.edu>

Published four times a year by the Centre for the Study of
Communication and Culture (CSCC), sponsored by the
California Province of the Society of Jesus.
Copyright 2015. ISSN 0144-4646

Editor emeritus: Emile McAnany
Managing Editor: Paul A. Soukup, S.J.

Subscription:
Annual subscription (Vol. 34) US\$50

Payment by check, MasterCard, Visa or US\$ preferred.
For payments by MasterCard or Visa, send full account
number, expiration date, name on account, and signature.

Checks and/or International Money Orders (drawn on
USA banks; for non-USA banks, add \$10 for handling)
should be made payable to Communication Research
Trends and sent to the managing editor

Paul A. Soukup, S.J.
Communication Department
Santa Clara University
500 El Camino Real
Santa Clara, CA 95053 USA

Transfer by wire: Contact the managing editor. Add \$10
for handling.

Address all correspondence to the managing editor at the
address shown above.

Tel: +1-408-554-5498
Fax: +1-408-554-4913
email: psoukup@scu.edu

The Centre for the Study of Communication and Culture
(CSCC) is an international service of the Society of Jesus
established in 1977 and currently managed by the
California Province of the Society of Jesus, P.O. Box 519,
Los Gatos, CA 95031-0519.

Smartphones

Paul A. Soukup, S.J.

psoukup@scu.edu

1. Introduction

A. Perspectives

The smartphone (or smart phone) combines telephone services with computer services in a single device. Though inventors and some manufacturers patented the idea and introduced prototypes 10 to 20 years earlier, the idea of mobile computer services caught the public attention with the roll out of personal digital assistants (PDAs) in the 1990s, with operating systems provided by Palm, Blackberry, or Microsoft. The Japanese telephone company NTT offered an HTML-oriented phone for general service in 1999. However, only with the release of Apple's iPhone in 2007 did the mass market for smartphones take off. Google published its open source Android operating system for mobile phones the next year. These two remain the dominant operating systems for smartphones, with the "app" or application as the cornerstone for their key features. Individual users purchase the apps they wish in order to customize their phones.

Smartphones offer standard telephony through a cellular network as well as Internet services, which most devices can manage either through WiFi connections or through 3G and 4G services provided through the cellular data networks. The shift to voice over Internet digital telephony by the various network providers provided the infrastructure for the rise of the smartphone (Feijóo, 2014). With this combination, the smartphone—or simply, mobile phone in recent discourse—appears as a "networked device" or even "media form" (Hjorth, Burgess, & Richardson, 2012b, p. 6). West and Mace (2010) maintain that the smartphone succeeded only because it made the mobile Internet a reality, highlighting the importance of the phone's digital connectivity.

Many of the research approaches to smartphones actually regard them as more or less transparent points of access to other kinds of communication experiences. That is, rather than considering the smartphone as something in itself, the researchers look at how indi-

viduals use the smartphone for their communicative purposes, whether these be talking, surfing the web, using on-line data access for off-site data sources, downloading or uploading materials, or any kind of interaction with social media. They focus not so much on the smartphone itself but on the activities that people engage in with their smartphones.

Though most communication research examines on individual and group usage of smartphones, a few people outside of the more technical journals and books have sketched—at least in overview form—the key factors for smartphone success, what Goggin and Hjorth (2014b) identify as infrastructure, economics, and policy. Apart from the manufacture of the handsets, smartphones require an infrastructure of telecommunications operators, with systems across the world divided between national telecommunication services and competing privately owned companies (Curwen & Whalley, 2014; Feijóo, 2014). Secondly, smartphones depend upon both formal and informal economies, from the manufacture and sale of the phones themselves to the production and sale of the apps to the revenues supporting particular app services (music sales, data storage, on-demand services, and so on) (Lobato & Thomas, 2014). Goldsmith (2014) adds a bit of detail, describing an app ecosystem: "Each ecosystem consists of a core company, which creates and maintains a platform and an app marketplace, plus small and large companies that produce apps and/or mobile devices for that platform" (p. 171). Finally, both manufacturers and operators must negotiate agreed-on technical specifications for voice and data transmission, specifications that governments must approve both locally and perhaps in cross-border treaty agreements (Middleton, 2014). These factors lead to a more complex view of smartphones: not only do they function as communication devices and embodiments of technical negotiations, but they also take on identities as symbols of economic and cultural systems, as

“moral objects” (whose value justifies their purchase price), as fashion accessories, and as lifestyle supports (Koskinen, 2012, p. 225).

Even with these common requirements, Goggin and Hjorth (2014a) note that “in each location we see how the mobile phone shapes, and is shaped by, the everyday. In other words, as global as the mobile phone is, it is also local upon every level” (p. 1). This combination works not only in every place but also within every group of users studied by those interested in smartphones—children and teens, businesses, schools and educators, game players, and so on. Communication researchers, then, have examined smartphones as “an artifact, a set of practices across material and immaterial [sic] forms of personalization, or as a researcher’s tool” (p. 1). Goggin and Hjorth, themselves among the leading researchers on mobile communication, note that mobile media combine older media forms with new uses, adding new affordances along with their new technologies (p. 2).

Researchers and marketers have applied the diffusion of innovations theory both to understand and to predict smartphone adoption. Lee and Lee (2014) found different factors in different markets: “Platform competition, platform openness, and price influence the diffusion of smartphones in OECD countries. In BRICs countries, platform openness and price are the main factors of smartphone diffusion. . . . This study suggests that a platform (standard)-neutral policy is important in the growth stage of smartphone markets” (p. 345). Perhaps not surprisingly, Lee (2014) found that peer influence and pricing play major roles in affecting college students in their adoption of smartphones. Kim, Chun, and Lee (2012) combined diffusion theory with the “Technology Acceptance Model” to test college students’ adoption decisions; however, they also included other variables such as affiliation, perceived popularity, and self-image. Their data “distribution indicates that the adoption of smartphone[s] among college students is approaching to the stage of the late majority beyond the early majority” (p. 2).

B. Resources for and approaches to studying smartphones

As the smartphone becomes embedded in the daily life of many segments of the global population, more scholarly resources have emerged, particularly in resource collections. Prominent among them is the edited volume by Goggin and Hjorth (2014b), *The Routledge Companion to Mobile Media*. This hand-

book consists of 47 chapters that describe the various fields of study for mobile media; the infrastructures and other background areas; entertainment, using new and old media; the arts and mobile media; various social categories, identities, and practices; cultures and politics; and geographies of mobile social media. Much of what the volume addresses has to do with smartphones as the primary platform which allows people to access what the editors call mobile media. The three-volume *Encyclopedia of Mobile Phone Behavior* (Zheng, 2015) offers a wide ranging set of topics in 120 chapters on general themes such as teens and phones, middle school students and phones, bullying, mobile games, multitasking, learning, educational assessment, social interaction, advertising, marketing, human resources, romance, family communication, health communication, etiquette, journalism, religion, science, social protests, mobile phone risks, cultural behaviors, texting, and social groups. Another helpful introduction, Ling and Donner’s *Mobile Communication* (2009), stresses the ways in which the smartphones have a cultural impact. This treatment develops a particular thematic approach toward smartphones and their uses and cultural roles. A number of other background collections also provide helpful information to the study of smartphones. Thomas (2011) had edited a collection examining young people and their media, including their smartphones. Lemish (2013b) has edited a similar collection on children, adolescents, and media. Hjorth, Burgess, and Richardson (2012a) offer a collection focused on the iPhone, examining cultural roles, while Hemelryk Donald, Dirndorfer Anderson, and Spry’s (2010) collection focuses on Asian youth and mobile phones.

A number of journals specializing in mobile media typically publish research on smartphones; these include *Mobile Media and Communication*, *The International Journal of Mobile Communications*, and *Convergence: The International Journal of Research into New Media Technologies*. A special issue of *IEEE Communications Magazine* addresses the social networks and mobile networks that underlie smartphones (Mohan, Agarwal, & Dutta, 2012).

Several government offices and foundations have funded research into smartphones. These include the Australian Research Council (<http://www.arc.gov.au/>); Ofcom (Independent Regulator and Competition Authority for the United Kingdom communications industries) (<http://www.ofcom.org.uk/>); the Kaiser Family Foundation (<http://kff.org/>); the Pew

Foundation, particularly their Internet and American Life project (<http://www.pewinternet.org/>); the John D. and Catherine T. MacArthur Foundation (<https://www.macfound.org/>); and the Newspaper Association of America Foundation (<https://www.newsu.org/about/partners/newspaper-association-america-foundation>). The websites of each group list additional information.

While researchers take many different approaches to studying the issues, some general trends have appeared in the literature. Fortunati (2014) outlines four general approaches to the study of mobile media, a category that includes the smartphone as “the most representative” (p. 21) of the class of objects. She argues that people have examined these media “as technological artifacts, relational objects, technologies-in-practice, and socio-technical systems” (p. 22). The first category encompasses the phones themselves, their functions as determined by their users (email clients, music players, cameras, and so on), and their representational quality as fashion objects. In the second category fall studies of how people manage human relationships with this technology, while in the third are studies of individual practices. If these first groupings focus on the micro level, the last calls attention to “practices, structures, and processes, characterized by contextualized space-time dimensions” (p. 23).

Goggin (2012) suggests a broader set of categories for our understanding the impact of smartphones. Drawing on four theorists, he points to both personal and social factors that situate these communication devices:

The works of Fortunati, Castells, Licoppe, and Katz provide conceptual resources for us to think about the communication subfield of the iPhone and what is notable and distinctive about it. Katz’s work draws our attention to the pervasiveness, breadth, and variety of mobile communication. Katz also poses the question of connectedness, through the concept of perpetual contact and the global bearings of mobile technology. Licoppe’s concept of “connected presence” combines a detailed investigation into the ethnography and pragmatics of facets of mobile communication with an awareness of the “technoscapes” and changing notions of the social which subtend it. To advance our understanding of this macro level, as well as offering a fresh account of the general economy of communication in the digital age, Castells’ work is especially helpful. Finally, Fortunati broadens the vista of what logics of power are at play in mobile communication across bodies, identi-

ties, relationships, reproduction, labor, and capital. (p. 16)

In addition to technology and the networks that connect the individual devices, the smartphone calls attention to personal presence, personal choices, and the social forces that shape both. Sarwar and Soomro (2013) argue for wide social effects for the smartphone, including effects “on business, education, health sectors, human psychology, and social life” (p. 216).

Ling (2014) lists a number of aspects of mobile phone usage. The mobile phone itself, whether a smartphone or not, makes us available to one another at all times. The more advanced smartphones add other qualities to this link: They promote social cohesion. “In the first instance, they allowed us the ability to stay in touch with our closest circle of friends and family. As noted there is a purely functional aspect to this coordination, but there is also a broadly expressive, or even phatic dimension to mobile interaction” (p. 35). Ling also notes what he calls “the structural embedding of mobile phones” (p. 36). In other words people have adapted to having smart phones or mobile phones so that their very accessibility changes how people interact with one another and the kinds of ways they approach daily, almost routine tasks. But this requires a prior decision. Ling identifies this complexity in the role of the smartphone in people’s lives, by commenting on decisions whether or not to use these phones. “It is clear that some tools are easier to use and that others are more elaborate, have broader functionality, and are perhaps more difficult to learn. There are also tools used for social interaction—such as the mobile phone—that require the user to, for example, purchase a subscription, buy a device, and learn how to use the device” (p. 39). “Mobile communication is becoming a structural element in society. It is gaining what Durkheim might call facticity. We are increasingly reliant on having a mobile phone with us and we are also increasingly reliant that others also have theirs with them” (p. 37). As with any network effect the value of the smartphone increases with a greater number of people who also have similar phones. In addition, the smartphone increases in value over a simple mobile phone in that it also provides connectivity to the Internet and data. This aspect of the phone relieves some of the immediate network effect of others needing phones while it increasingly depends upon the network effect of the Internet itself.

Communication and other researchers have examined a whole range of approaches to the smart-

phone and activities that people engage in. This review will provide a look at the smartphone through the lenses of the various topics they choose. Some have focused on particular groups of users (teens, for example) and others on uses like business applications of the smartphone; journalism, news reporting, and news consumption via the smartphone; educational applications; interpersonal connections via the smartphone; cultural impacts; and so on.

2. Teens and Young People

A. Usage

Parents, schools, foundations, governments, and researchers have all shown interest in children's and teen's engagement with smartphones. Though usage among this group changes regularly, studies show consistently rising levels of the amount of time spent with the devices and of the amount of time spent with particular applications. While up-to-date statistics are not always readily available, several studies done shortly after the rise of the smartphone give a sense of the levels at which children and teens use these phones.

- The Independent Regulator and Competition Authority for the United Kingdom Communications Industries. (Ofcom) reports that in 2014 “Four in ten 5–15s own a mobile phone, rising to almost eight in ten children aged 12–15. Children in each age group are more likely than in 2013 to use a mobile phone to go online (36% vs. 27% for 5–15s). This varies significantly by age, with 59% of 12–15s going online using a mobile phone. This coincides with a big increase in smartphone ownership at 13, when ownership jumps from four in ten for 12 year olds (41%) to almost seven in ten for 13 year olds (67%).” (Ofcom, 2014, p. 5). They also report “Among 12–15s who go online, the mobile phone is the most popular device for social and creative activities such as: arranging to meet friends (71%); messaging friends (53%); looking at photos posted online (47%); and sharing photos they have taken (45%)” (p. 6). The lengthy report also publishes data on parental concerns, detailed statistics on all media use by young people, and attitudes towards various media and media education by both parents and youth.

Rather than follow any one of the organizational schemata proposed above, this review will look first at a population segment—teens and young people—and then at ways that smartphones affect different kinds of activities: Education, Business, Journalism, Health, Daily Living, and Gaming. It will end with a brief look at research into some issues identified by different scholars, followed by a conclusion suggesting further research.

- Combining data from the Kaiser Family Foundation's Generation M² 2009 study and the Australian Communications and Media Authority's (ACMA) 2007 study, the ACMA attributed a one hour, 17 minute increase in media consumption time between 2004 and 2009 to use of smartphones and MP3 devices (ACMA, 2010, p. 1). It further notes that “mobile phones were a multimedia device for young Americans. On a typical day, 8- to 18-year-olds reported spending an average 49 minutes either listening to music (17 minutes), playing games (17 minutes), or watching television (15 minutes) on a mobile phone” (p. 3). Both Australian youth and American youth spent more time texting than talking on their phones (p. 3).
- The Newspaper Association of America Foundation combined data from three studies (the Kaiser M² study, a Nielsen Company report of 2009, and the Pew Internet & American Life Project of 2010) to profile young people's media use. These studies report that American young people do not turn to newspapers or to products of news companies when they think of media. And media time consists of many things: “They split their enormous media time among many activities—social networking, viewing video, exchanging Instant Messages, viewing graphics and photos, listening to music, watching TV, playing games, looking up things, even catching up on the news—often simultaneously” (p. 2). By 2010, “The cell phone and the Internet have become ‘near-ubiquitous’ in the lives of teenagers: Three-fourths have cell phones and 93% go online,” with 27% using their phones to go online (Vahlberg, 2010, p. 12).

- A research group from the Universiti Sains Malaysia and the Malaysian Communication and Multimedia Commission provides a similar snapshot of youth media use in Malaysia, with rising levels of smartphone ownership and use, with 90% of homes owning a smartphone of some kind and children beginning their mobile phone, gaming platform, and Internet use between the ages of 11 and 13 years (Balraj, Pandian, Nordin, Nagalingam, & Ismail, 2013).
- Lauricella, Cingel, Blackwell, Wartella, and Conway (2014) provide more current estimates by surveying 8- to 17-year-olds. Their results suggest “that 70% of the sample owned a mobile phone, with 50% owning a regular mobile phone and 20% owning a smartphone. Mobile phone ownership increased significantly with age” (pp. 360–361).

These studies include both smartphones and older mobile phones. They also include usage statistics on any kind of online media engagement.

Other treatments contain information about smartphone use, along with other characterizations of young people and their media. Hemelryk Donald, Anderson and Spry (2010) report a number of studies undertaken through the Australian Research Council’s “Mobile Me” project, examining young people and mobile phones. Focused on Asia, these studies cover Australia, China, Japan, Singapore, and South Korea.

B. Smartphones and teen culture

Children’s and teens’ use of smartphones and, more broadly, digital media has garnered a great deal of scholarly attention. Like the more general conclusions drawn by others about smartphones, many of those concerned with children and teens note that the smartphone itself drives few of the communication behaviors of these groups; rather the phone enables or enhances what teens ordinarily do—interact with their friends (boyd, 2014; Ito et al., 2009; Watkins, 2009; Davies & Eynon, 2013, p. 56; Mesch, 2013, p. 290), including, for example, listening to music with their friends through shared earbuds (Bickford, 2013, p. 138). In other words, the smartphone does not create the teen user but the teen user creates the smartphone in his or her image.

Thus Buckingham (2011), in his foreword to the collection edited by Thomas (2011a) criticizes the construct of the “digital native” as “overstat[ing] the extent and effects of technological change and ignor[ing] elements of continuity” (p. ix). The construct also “over-

states the differences between generations and understates the diversity within them” (p. x). Smartphones (and mobile phones in general) become somewhat transparent, allowing their users to connect with other people and with various digital resources; they do not necessarily create a new breed of user. Other essays in the volume trace the origins and development of the label “digital native” (Thomas, 2011b; Prensky, 2011) and suggest a more positive research agenda, one which should focus on communities (Jones, 2011). Stepping back from a consideration of just smartphones to consider the relationship of youth to all digital media, Thomas concludes:

First, the way many people use technology to find, interact with, and process information is changing. Second, the nature of global networks is altering the way communities are formed and developed. Third, digital technologies bring with them both the potential for great opportunities in connecting people and communities as never before, as well as significant challenges in the form of a myriad of issues from cybercrime to information overload. (2011b, p. 9)

While the smartphone matters, it matters within a larger context.

Weber and Mitchell (2008) highlight another aspect of the “social” side of smartphones. Reporting on an ethnographic study, they describe the phone “as an extension of self” whose owner “has invested this object with significant personal meanings” (p. 32). The phone connects the owner with a larger social group (family, friends) but also with personal identity. “These technologies and the communicative conduits they offer wield significant symbolic value in the social worlds of youth: they constitute the basis of roles, relationships, support systems, and status among peers” (Durham, 2013, p. 157). Stald (2008) quotes a teen who epitomizes this view, “Parents usually don’t know how important a tool the mobile has become in young people’s lives. They only think about the communicative function, not the social meaning” (p. 143). That social meaning helps a teen both to create an identity and to manage that identity. Stald argues that the smartphone matters so much in identity formation and management because it makes the user available at all times and present to others in various ways; the phone itself acts as a personal log “for activities, networks, and the documentation of experiences, a role that has implications both for relations between the individual and the group and for emotional experience”; and the phone

serves as a means for a teen to learn social norms (p. 144). Stald's work indicates that, for teens, "The common mobile is a kind of Swiss Army knife, which holds a number of useful tools even if people almost always tend to use the same ones. The use of the mobile can be seen as either practical (instrumental) or related to content (expressive)" (p. 148). Some of the common uses among her teen sample include being available to friends, filling free time, phatic communication, being present in shared spaces, being present in several spaces at the same time, and—more negatively—raising levels of interpersonal stress.

Ling and Bertel (2013) offer a similar view of child and adolescent interaction with smartphones and mobile communication. Noting that teens have greater autonomy with regards to technology than children, they offer a review of research on these two groups. They divide their review into three sections: the "social functions of the mobile phone" (coordination among friends, expressive activities, safety, texting, and multimedia and Internet uses); "the social effects of mobile telephony" (social cohesion, social exclusion, emancipation); and "problematic issues" (mobile phones in the public sphere, money uses, sexual uses, bullying, and distracted driving).

Within all of these general approaches, and perhaps not completely surprising, gender differences appear: "boys' culture is 'game-dominated' (including video, computer games, and Internet surfing), while girls' culture is more about relationships, communication, and talk (including their preferred use of new technologies like the Internet and the mobile phone) (Lemish, 2013a, p. 69). Mazarella (2013) echoes this, but cautions that more recent studies have found fewer differences between girls and boys in terms of their uses of smartphones at least for communication, while some differences appear in games and music listening.

A part of the John D. and Catherine T. MacArthur Foundation series on Digital Media and Learning, Ito and his colleagues (2009) summarize their research on children interacting with new media in their title, "Hanging out, messing around, and geeking out." In their treatment, mobile phones and smart phones appear as a subtext: the authors seldom directly address smartphones, but they regard them as a way that teens and children interact with the online or new media world—and with their own child- or teen worlds. Watkins (2009) puts it this way as he describes his own studies of teen use of their smartphones: "What I was seeing, of course—young people socializing with each

other face-to-face and through their mobile phones—is standard fare today" (p. 171). Such observations occur repeatedly in studies of young people and their phones. In reporting on her ethnographies of teens using smartphones, boyd (2014) notes that parents and other adults seem taken by surprise as how little teens use these devices as telephones; instead they are cameras, texting platforms, location services, and objects of shared attention used for viewing one another's photos, for example (p. 3). Have the teens' smartphones displaced other online activities and sources? In a study of teens in Hong Kong, Seoul, Singapore, Taipei, and Tokyo, Lin, Zhang, Jung, and Kim (2013) found almost 90% had smartphones. "In general, the teens tend to use the mobile phone for recreation and entertainment purposes, especially playing games and listening to music. They are less likely to use the mobile phone for more sophisticated purposes, such as petitioning, voting, or shopping" (p. 651). But in their study of U.S. 13- to 17-year olds, Cingel, Lauricella, Wartella, and Conway (2014) found that "adolescents who own smartphones engage in more constructive online communication practices than those who share regular cell phones or those who do not have access to a cell phone" (p. 1). Takahashi (2014) offers more comparative data, noting how similar young people's smartphone use has become in Japan, the U.S., and the UK.

In her edited handbook on children, adolescents, and the media, Lemish (2013b) brings together many helpful individual articles. In general, the authors offer descriptions of the reality of the teen situations, with some investigating particular topics, some categorizing uses and activities of the various media either as individual or more generally as teen behavior, and some include warnings or advice regarding behaviors. In most of these studies smartphones typically appear simply as another screen that forms a part of children's lives, though at times the phones may have some standing in themselves, as for example as status symbols or manifestations of consumerism, which appears as a part of phone reality (p. 3).

C. Risks and parental concerns

Teens typically feel safe with their phones, though adults often recognize some risks. Stald (2007) explores "the potential connection between everyday uses and issues of trust, risk, and democracy" (p. 206). Because their phones remain on all the time, teens risk surveillance (by friends and by government) but at the same time they find an increase in power through

greater coordination and better information. The sense of safety with smartphones varies. Vickery (2015) examined the social privacy challenges to teens in “a low-income and ethnically diverse high school” and found that

teens manage social privacy in at least three ways. First, they negotiate liminal boundaries of what constitutes a communal or shareable mobile device, which are structured around financial constraints. Second, through non-use, they actively resist the ways mobile and social media reconfigure social and physical spaces. Third, they deliberately use multiple platforms as a way to cope with evolving privacy settings, social norms, and technological affordances; this is a deliberate strategy intended to resist social convergence. (p. 281)

Once again, teen use of mobile devices fits into existing teen culture, including strategies to resist group pressures.

Contemporary news media has made much of one particular risk: “sexting,” or the sending of titillating images of themselves by teens to other teens (Lenhart, 2009). Draper (2012) “contextualizes the reaction to the practice of sexting among adolescents by exploring legal responses and reviewing the literature on teens and cell phone use.” She “explores three primary themes that emerge from the broadcast [news] discourse: preference for technologically deterministic explanations; reliance on gender-differentiated scenarios; and, a preference for solutions involving surveillance” (p. 221). Draper asks how much news coverage fits into a media panic theory. Contemporary news coverage reports how civil officials (district attorneys, for example) and school administrators struggle with the issue: how much of these risks reflect typical reckless teen behavior and how much sexual practice? (Associated Press, 2015; Zimmerman, 2015).

Not surprisingly, parents and teachers have concerns about the use and impact of smartphones in the lives of children. Osit (2008) offers a clinical psychologist’s advice on children and media of all types, including phones. Noting that “the cell phone is a prime example of how easily kids adapt to the frequent changes in technology, how they use technology to suit their needs and desires, and, in turn, how technology is shaping their attitudes, behaviors, and values”(p. 2), he identifies challenges that children face in terms of aggression, impulse control, and social skills. His book walks parents and teachers through typical develop-

mental aspects (identity formation, gratification of needs and desires, work and play, interpersonal relationships, personality integration, etc.) and offers advice for working with children.

Clark (2013) also addresses parents. Based on ethnographic studies over 11 years (2001–2012), she examines how teens have taken first to mobile phones and then to smartphones as a normal part of their lives. Reviewing evidence and research, Clark offers advice to parents, including, for example, a sample “Family Digital and Mobile Media Agreement” that specifies time together, mutual support, limits, and mutual accountability. She also provides background for parents to help them understand how teens regard phones as cultural resources. In addition, she sketches a comparison between less advantaged, immigrant families, and middle-class families regarding smartphones ownership, use, and parental guidelines. Goh, Bay, and Chen (2015) report information about the use of such parental rules among Singaporean children, finding that the younger children seem content on following their parents’ guidelines.

However, things are not completely bleak. A number of researchers have investigated how smartphones and mobile phones more generally help families. In the context of all communication media in the family, Nathanson (2013) comments, “One technology that not only has the potential to promote increased caregiver-child interaction but also does appear to facilitate this connection is mobile phones. Both parents and adolescents report that they use cell phones to stay connected to one another This technology also gives both parents and adolescents a sense of control in regulating interactions” (p. 302). Ribak (2013) reports similar results from studies with parents and teens, noting how the phone, particularly those with location services, reassure parents regarding their children’s safety while giving the children a greater sense of autonomy. “Certainly teens feel that the mobile phone allows them to become less dependent on their parents: they are not required to tell them in advance where they plan to go, they can stay out farther and longer, and they may manipulate the conversation so as to calm their parents regardless of their actual whereabouts All three practices suggest that the mobile phone is important as an object that provides the potential for conversation, rather than for the actual conversations that are conducted through it” (p. 309).

While James, Davis, Flares, Francis, Pettingill, Rundle, and Gardner (2009) do not single out smart-

phones, they do include them in their research on the GoodPlay Project sponsored by the MacArthur Foundation. That project had twin goals: “(1) to investigate the ethical contours of the new digital media and (2) to create interventions to promote ethical thinking and conduct” (p. 9). Defining good play “as online conduct that is both meaningful and engaging to the participant and responsible to others in the community in which it is carried out,” (p. 15), they investigated identity play, privacy, ownership and authorship, credibility, and participation. Not trying to settle the issues, they present their findings of young people’s attitudes to the five areas as a sketch of mental models that they hold. The overall study suggests a number of lines for further investigation. James (2014) follows up on this exploration of young people and ethics. Again, she does not directly address smartphones, but what she writes about ethics and new media does apply to smartphones. Another volume in the John D. And Catherine T. MacArthur Foundation series on Digital Media and Learning, her book reports a study on what some perceive as an “ethics gap” in the lives of young people. James makes a key distinction, “When I use the word *moral*, I am referring to a disposition to care, to show empathy, or to engage a principle in one’s interactions with a known individual or a small group. When I use the word *ethical*, I am suggesting a more abstract consideration of the effects of one’s actions on a wider, often distant, community or public” (p. 5, italics in original). Both apply to the online world, a realm which more and more young people engage through

3. Education

Communication technology has often appeared at the forefront of education and educational reforms, from radio schools to educational television to computer-assisted learning. So, it should surprise no one that smartphones also appear as educational resources. As communication devices, smartphones connect students and classrooms to online resources; they provide new resources in the various apps that developers have proposed specifically for learning; and, beyond the classroom, smartphones turn cities and public spaces into classrooms. As tools that provide opportunities beyond simply communicating, smartphones add yet more opportunities for learning.

their smartphones. The research, at least at its initial stages, indicates that young people more easily grasp the idea of moral behavior, in dealing with those closer to their own groups, than they understand the more abstract ethical principles.

D. Bullying

Li, Cross, and Smith (2012) report studies from around the world (“Australia, Austria, Canada, England, Finland, Italy, Japan, Portugal, South Korea, Spain, and the United States,” p. xii) on cyberbullying by various means, including smartphones, focusing on pre-adolescents and adolescents. Bullying by phone contact will often include the name or the number of the source of the message, implying that the two parties know each other. However, smartphones linked to social media, for example, can keep the identity of the bully hidden. In their introductory review of research on cyberbullying, Li, Smith, and Cross (2012) note that researchers have not settled on a common definition of such bullying, but they do identify a number of characteristics that include repeated behaviors, harmful interactions, and deliberate behaviors, which reflect these core items: “*aggressiveness, intention, repetitiveness, and the power imbalance*” (p. 7, italics in original). Cyberbullying adds a certain familiarity with technology, indirect interaction (which prevents the bully from witnessing the victim’s responses), different motivations from face-to-face actions, a larger potential audience, and a greater variety of location (where traditional bullying takes place only at school) (pp. 7–8).

A. Classroom education

Two recent collections identify some of the possibilities. Wankel and Blessinger (2013) introduce research about smartphones in higher education settings and include reviews of the literature as well as case studies. Individual contributions address educational designs that include smartphones, student engagement, innovative teaching techniques, and continuing education plans. Middleton (2015) provides a collection filled with specific teaching recommendations. In the words of one reviewer, the book as a whole provides a “tool to instruct, educate, advocate

for, and transform ways in which educators and students understand and embrace smart technology” (Talbert, 2015, p. 45). Contributors suggest apps as well as classroom plans to improving student learning, ways of harnessing students’ own devices, and classroom management for collaborative learning.

Hinman (2013) briefly introduces a number of learning apps for the iOS, particularly *Globe*, *TalkRocket Go*, and *Proloquo2go*.

B. Learning support

Smartphones can play an administrative role in education as well. As more universities adopt learning management systems, both students and teachers manage learning online (from distribution of class materials, scheduling, taking attendance, grading, etc. by teachers to submitting assignments and following class work by students). Cho, Jung, & Im (2014) surveyed students to compare their experience with learning management systems on a PC versus on a smartphone. They found “that while only usability and reliability significantly affected user satisfaction in the PC context; all the quality attributes [capability, usability, performance, reliability and documentation] except documentation had a significant influence on user satisfaction in the smartphone setting. We also found that reliability was twice as important to user satisfaction in the smartphone context as in the PC context” (p. 142). In the context of examining student retention in distance education, Simpson (2013) suggests that despite new approaches such as the smartphone, institutions still have a much lower graduation rate with distance education. He suggests that this results not from poor resources, but from institutional attitudes to distance education and retention. On the primary and secondary levels, parents have shown greater interest in using new technologies to keep in touch with teachers, something that Thompson, Mazer, and Flood Grady (2015) explain through the media richness theory.

Dawson (2012) considers another learning support in which smartphones play a role. In a study of college students in South Korea, he examined how social interaction and interpersonal support facilitated learning. Students collaborated in data collection, data analysis, and cultural interpretation through a variety of tools on their smartphones. Chuang (2015) reports one specific application to foster collaborative learning: “the Smartphone-Supported Collaborative Learning System (SSCLS), which includes the *MyResponse* mobile app and the *Delphi* method” (p.

463). The article reports on increases in in-class participation, collaboration, and student learning through the app. Smartphones and similar digital tools can also tie into the “Next Generation Learning Environment,” in which students use the communication capabilities of their phones for both virtual and classroom environments (Chao & Wu, 2008).

Kato (2014) suggests a wide range of learning activities that smartphones might support, including harnessing community blogging, “using camera phones for field research” by collecting data and sharing results, creating collections, analyzing data, and encouraging alternative forms of discovery. Davies and Eynon (2013) report more social use of smartphones than learning use, not by teen students’ choice, but by that of their schools. This situation is changing, with schools allowing teen students to use their own devices (often smartphones) to support lessons. “Most efforts to use technology within the wider curriculum were reported in positive terms in our own study, either because they offer a well-focused and stimulating experience of technology enhanced learning—students frequently report high satisfaction when ICT is used by thoughtful and innovative teachers—or because they simply provide an opportunity for young people to do their own thing for a while” (p. 48).

Smartphones not only support collaborative learning, but can offer tools to allow students to experiment with class formats. Barone (2012) discusses a multidisciplinary course that utilized smartphone cameras to produce live election coverage. Mills and Green (2013) report on a trial project on global citizenship in which faculty used the smartphone screens for “screen literacy learning” as well as increased student engagement. Other, more specialized, classes and learning find support in smartphones. These include speech enhancement (Chappel & Paliwal, 2014), music performance at the secondary education level (Herrera, 2015), creative media production (Kupiainen, 2011), social and linguistic skills for immigrant adolescents (Ranieri & Bruni, 2013), and communication functions for autism spectrum youth (McEwen, 2014).

Smartphones do not garner unalloyed support in education. While they do bring advantages, some criticize the multitasking that they easily promote. Grinols and Rajesh (2014) review the literature on multitasking and learning, noting the problems, and then propose ways that could promote learning. Similarly, some have raised doubts about screen reading. Paxhia (2011) found that “75% of students surveyed still prefer the

traditional printed textbook over a digital counterpart, according to the ongoing research project Student Attitudes Toward Content in Higher Education from the Book Industry Study Group” (p. 321), but notes that the survey also showed student dissatisfaction with the price of printed textbooks.

C. Ubiquitous learning

Smartphones have played a key role in the development of ubiquitous learning (u-learning), the proposition that the city or its spaces can function effectively as a classroom. The idea of non-school spaces as learning environments certainly does not begin with smartphones (museums and libraries have done this for hundreds of years), but the smartphone can enable u-learning in more contexts. Harnessing smartphones, GPS, and Internet access, the “mobile city game” Frequency 1550 takes students to the Amsterdam of the year 1550. Admiraal, Akkerman, Huizenga, and van Zeijts (2009) describe the game and the roles of the players and report that “evaluation of the learning effects reveals that students who played Frequency 1550 acquired significantly more historical knowledge than the students who attended a regular lesson series” (p. 2). Styliaras and Koukopoulos (2012) describe how smartphone interactivity has changed learning at a cultural heritage site, including things like virtual tours, information access, and support services. They “investigate the capabilities and limitations of smartphone devices as an educational device in a cultural heritage site and environment [and] . . . classify users and cultural content of cultural heritage sites aiming at proposing educational scenarios that cover the needs of various user groups such as curators, teachers and students” (p. 285). Tomiuc (2014) reviews similar programs for museums.

In a more general vein, Squire and Dikkers (2012) use the Social Construction of Technology theory to see how students would use smartphones outside of schools for learning. Their sample of home-schooled adolescents “strongly valued these devices for learn-

ing, and constructed them as personalized devices for amplifying learning, specifically through amplifying access to information, social networks, and ability to participate in the world. Access to mobile devices was deeply tied to personal power for these youth, as they were able to function more effectively to meet their goals with employers, teachers, and peers” (p. 445). Though not specifically addressing smartphones, Herr-Stephenson (2011) provides an overview of how mobile and digital media support u-learning in libraries, after school programs, and museums. She offers some research-based outcomes, while calling for more consistent, more empirical, and more methodologically sound studies. In a less placed-based approach to u-learning, Jubien (2013) reports on how students access recorded lectures and uses “Max van Manen’s four existentials of lived space, time, relationship with others, and body as a guide to uncover some of the hidden dimensions of listening to podcast lectures” (p. 73).

Several studies attempt to measure student attitudes to u-learning. Shin and Kim (2011) studied “the fundamental factors influencing the users’ intentions to continuously use smartphones as a u-learning tool” and developed a model that included cognitive perceptions, access to telecommunications, satisfaction, demographics, and user intention (p. 1). Turner and Croucher (2014) focused on the interrelationship of “text messaging on smart phones, as well as consumption of traditional media, such as watching television and reading books for pleasure, . . . [and] intellectual cognitive processing and performance in school” (p. 199). Surveys of college students showed a greater role of traditional media for predicting success in school. Using qualitative methods and building on the social construction of technology model, Laskin and Avena (2015) found that “students rarely use mobile technology in the classroom and, moreover, do not expect to use it in the formal classroom environment, while outside the classroom they fully endorse the educational applications of mobile media” (p. 276).

4. Business

The business community has rapidly embraced smartphones, in part because business users paved the way for these phones through the early personal digi-

tal assistants that featured email, web browsing, and messaging—though without telephony. As the smartphone brought the various features together, busi-

nesses recognized their potential, first for different kinds of internal communication and then for communication with their various constituencies through marketing, advertising, and sales. Reminding us that smartphone usage began in business, Humphry (2014) writes, “Historically, there is a strong connection between developments in information and communication technologies (ICT) and global transformations in patterns of work and employment” (p. 335). In her review of some of the research on business uses, she notes that in her proposed agenda for communication researchers, “the focus has not been on what mobiles can do *for* business (new or enhanced efficiencies occupy a large proportion of the technical, business, and management literature on new technologies in books, journals, and in media coverage) but on social research of mobiles *in* work and professional life” (p. 341). She argues for the importance of this work “for its insights into how work is reinterpreted and restructured in and through new discourses of technology and capitalism” (p. 342). This demands new research approaches as well as new understandings of “work.”

Even before addressing such issues, we note that some have studied the business models that unite many of the stakeholders in smart phones. Campbell-Kelly, Garcia-Swartz, Lam, and Yang (2015) describe these as the overall group of “customers,” that is, “consumers (users), handset makers, network operators, app developers, advertisers, and chip manufacturers.” They explore how the major mobile operating system sponsors manage the different groups (p. 717). This approach serves as yet another reminder that the smartphone forms just one part of a larger ecosystem of communication technology, social understanding, and business.

A. *Company communication*

Within companies, individual workers, units, and managers have had to develop different communication skills when the smartphone enters day-to-day operations. DeKay (2014) edited a special issue of *Business and Professional Communication Quarterly* in which the contributors survey business uses, adoption of new practices, and employee training. Twentyman (2013) provides a similar overview, based on a 2013 digital communication summit. Topics included organizational communication via the smartphone and the practice of some companies in allowing employees to use their personal phones for work.

Martínez-Cerdá, and Torrent-Sellens (2014) report initial research in which they ask about “what kind of personal skills related to the efficient use of media can be useful from a business perspective, and how these media literacy skills can be aligned with other factors, such as innovation, that determine the competitiveness of companies” (p. 288). Novita Christin, Zainuddin Tamin, Santoso, and Miharja (2014) report a similar study of mobile professionals in Indonesia. Their informants described new work patterns, improved productivity, and more efficient use of travel time. The technology of the smartphone can also cause confusion in the workplace. Washington, Okono, and Cardon (2014) surveyed American business professionals about appropriate use of the technology during meetings; most agreed that they should not use smartphones in formal meetings, though men much more than women found them acceptable in informal meetings.

Stephens (2012) looks at one particular skill: “multicommunication,” that is, interacting with multiple people via different apps. She proposes a model that “suggests that multicommunication in meetings consists of five major factors. While the factors of Informing, Influencing, and Supporting Others might be the most obvious functions of multicommunicating, the other two factors, Participating In Parallel Meetings and Being Available, provide additional insight into the influential role that others have in the practice of multicommunicating” (p. 195). Does mastery of such skills come from younger workers, new hires? Kiddie (2014) answers that in the negative, reporting study results that, building on Rogers’s diffusion of innovation theory, indicate “that change agents and early adopters already in the company, not new hires, will effect a change in communication media that will involve new technology such as smartphones” (p. 65).

Smartphones affect labor in ways other than increasing connectivity and promoting communication. De Peuter, Brophy, and Cohen (2014) offer a political-economic perspective, taking into account not only what workers do and how business and neoliberal capitalism have shaped their work, but also the sometimes exploitative manufacturing processes. In these contexts they examine worker resistance movements. “Mobile phones are both a catalyst of and a tool within such contests, which are now a facet of a wider reformatting of class conflict within what Jodi Dean terms ‘communicative capitalism,’ a material-symbolic order promising unfettered opportunity for connection, participation, and contribution” (p. 440).

Smartphones in the workplace have gender implications. Lim (2014) offers background on women and smartphones, particularly among traditionally understudied groups such as “migrant women workers and transnational families” and the increasing burden of “double work,” which blurs the boundaries of home and work. Cumiskey (2014) offers a complementary perspective, studying such things as the “impact of the promotion, adoption, and diffusion of mobile media on women” (p. 366) and the ways that women use mobile media in public spaces for safety, “remote mothering,” and “work-life balance” (p. 368). Crowe and Middleton (2012) turn to professional women and questions of work-life balance. They report “a number of specific, mindful practices used to convey and enable accessibility, professionalism, and responsiveness to colleagues and clients, showing how smartphones are used to shape and maintain professional identities. At the same time, women also choose to set boundaries to ensure that the immediacy enabled by their smartphones does not encroach upon their personal relationships in undesirable or unpredictable ways, and to allow them to choose when to engage with work while outside the office” (p. 560). Workers using smartphones (either their own or company provided) for work raises issues of unintended consequences for women and for all workers. Frizzo-Barker and Chow-White (2012) place their focus more on the life side of the work-life balance, interviewing women about how they manage public and private aspects through smartphone apps, which may tie them to work more than they would wish. Genova (2010) discusses the liability issues of constant smartphone contact, ranging from driving and working, to overtime, to workers’ compensation. Few companies have systematically considered smartphone use from a risk management perspective.

B. Sales

Businesses have developed thousands or tens of thousands of apps to promote and sell their products. These include shopping (Lu & Su, 2009; Park, Jun, & Lee, 2015), book publishing (Sabatier, & Fitzelle, 2011; Tian & Martin, 2011; Chang, 2013), banking (Shaikh & Karjaluto, 2015; Yusuf Dauda & Lee, 2015), television transmission (Lee, 2015), and research about both app development (Suh, Lee, & Park, 2012) and public opinion (Link, Murphy, Schober, Buskirk, Childs, & Tesfaye, 2014). In each of these areas researchers ask about the quality of the communication experience, customer satisfaction,

and—particularly for banking—security and trust. Han, Choi, & Hong (2012) take a slightly different approach and propose ways to build on the app development of the communication interest group of the IEEE to support better apps. Those researching shopping generally look at the willingness to purchase as a result of smartphone enabled experiences.

C. Marketing

The majority of communication studies about smartphones and business addresses issues of marketing and advertising through smartphones. Watson, McCarthy, and Rowley (2013) offer an overview of some of the key issues, including ways to overcome consumer resistance to marketing messages. Izquierdo-Yusta, Olarte-Pascual, and Reinares-Lara (2015) propose and test a theoretical model to compare attitudes of those with smartphones to mobile marketing to the attitudes of non-phone users. Their “theoretical model integrates the influences of control, reference groups, perceived added value, and ease of use on attitudes toward mobile advertising, as well as the relationship of these effects with intentions toward advertising, mediated by mobile Internet usage” (p. 355). They found that prior attitudes to advertising and marketing strongly influenced people’s intentions to receive such messages. Ruiz-Del-Olmo and Belmonte-Jiménez (2014) investigated the reactions of Spanish college students to apps linked to commercial advertising and online purchasing. Their data “show a predisposition towards an early adoption of these practices. . . . [A]ctive consumers interact with commercial content, establishing social networks with the backing of the brand culture and image as a form of group cohesion” (p. 73). Fulgoni (2014), on the other hand, applies some of the prior research to purchasing decisions, comparing television advertising, in-store and online marketing, and smartphone apps. Avidar, Ariel, Malka, and Levy (2013) examine young early adopters and find that “most users use the smartphone to satisfy both interaction-related and cognitive-related gratifications” though only a few “use their smartphones to interact with businesses and nonprofit associations” (p. 603). The same research team found similar results in a different study two years later, though they noted that participatory engagement works better than one-way communication for the smartphone users (Avidar, Ariel, Malka, & Levy, 2015).

Smartphone marketing depends on an increasingly complex set of interactions among phone users,

network providers, and companies. Trust forms an important component of marketing. Tojib, Tsarenko, and Sembada (2015) investigate a model in which the symbolic value of the smartphone spills over into attitudes to products and services. "The findings demonstrate that the symbolic use of smartphones results in increased attachment to smartphones that in turn has a positive effect on deriving experiential value of using value-added mobile services. Symbolic use also has a positive relationship with value-expressiveness resulting from the use of such services" (p. 1220). Similarly a sense of trust in the data networks leads to a greater use of the phones; costs of data plans have an indirect influence on loyalty and trust (de Reuver, Nikou, & Bouwman, 2015). Kim, Jun, Han, Kim, and Kim (2013) note that consumers show attachment to their phone and apps. They ask how that "attachment towards mobile applications is influenced by the antecedent variables, self-connection and social-connection, and how the attachment influences the outcome variables, brand supportive behaviors, self-efficacy and ultimately life satisfaction" (p. 393). Survey data indicates that the greater the self-connection or social connection through mobile apps, the more they engage in word of mouth marketing and the more they demonstrate life satisfaction.

Yet another aspect of the complex interaction arises from the connection between social media habits of smartphone users and traditional marketing. Word-of-mouth marketing has long played a role. Okazaki (2008, 2009) reports a study of teens invited to participate in a product campaign. "A core attitudinal model consisted of interpersonal connectivity, self-identification with the mobile device, affective commitment to the promoted brand, attitude toward the campaign, and willingness to make referrals" (2009, p. 12). While he found that face-to-face interaction led to stronger brand commitment, the mobile or smartphone interaction led to a greater willingness to make referrals. Benson-Allott (2011) compare marketing of Hollywood films through phone apps, noting that these apps engage audiences in ways similar to the DVD extras with which viewers are familiar.

Branding points to another component in the interaction between smartphone users and product marketing. Many had supposed that "second screens" (that is, the use of a smartphone during television viewing) would enhance brand recognition. However, Jensen, Walsh, Cobbs, and Turner (2015) report a

study in which "results demonstrated that both brand recognition and recall were reduced by second screen activity across nearly all audio or visual consumption experiences. Further, while second screen use in an audiovisual setting did not interfere with consumers' ability to recognize brands, indicating they were able to multitask and were not distracted, it inhibited their ability to recall brands from memory. This result provides evidence that second screen use may interfere with elaborative rehearsal and reduce cognitive capacity" (p. 71).

Several studies focus on other variables in the smartphone-marketing relationship. Akpojivi and Devan-Dye (2015) compared South African college-aged users' concerns about privacy with their perception of the value of mobile advertising, finding a greater concern for privacy and for the ability to control data collected about them through the marketing. Ali, Madni, Islam, and Husnain (2014) interviewed Pakistani youth who showed preferences in advertising types but felt that such advertising created a false need. Gao, Sultan, and Rohm (2010) looked at mobile marketing to a youth audience in China. Their "results confirm the importance of risk acceptance and personal attachment in influencing mobile marketing acceptance, and support the 'priming' effect of regular mobile phone usage on orienting consumers toward accepting mobile marketing initiatives" (p. 574). A study of the marketing strategies of youth-oriented radio stations in Colombia noted that "that innovation in content and interaction with listeners through social network sites and other online channels are the main strategies to attract listeners" (Cuesta, 2012, p. 73).

One other, possibly innovative, approach to marketing through smartphones involves the use of Bluetooth-enabled advertising. Such advertising would harness the location of the phone to deliver place-relevant marketing information. Leek and Christodoulides (2009) note that "although the majority of the respondents were willing to accept this form of advertising, they needed both to be in control of the frequency with which they receive messages and also to be reassured that the medium could ensure privacy and security" (p. 44).

Business use of the smartphone has achieved a certain maturity in intra-corporate use, due to the PDA. However, its use in marketing remains new, with customers sending mixed signals about the kinds of communication they welcome, their tolerance for potential invasion of privacy, and the ease of the experience.

5. Journalism

A. Reporting and editing

As early as 2001, journalists recognized that their world could not continue without change in the face of digital technologies. Well before smartphones, observers like Pavlik (2001) envisioned reporters working with mobile devices like PDAs. He described the overall setting in this way:

There is emerging a new form of journalism whose distinguishing qualities include ubiquitous news, global information access, instantaneous reporting, interactivity, multimedia content, and extreme content customization. In many ways this represents a potentially better form of journalism because it can re-engage an increasingly distrusting and alienated audience. At the same time, it presents many threats to the most cherished values and standards of journalism. Authenticity of content, source verification, accuracy, and truth are all suspect in a medium where anyone with a computer and a modem can become a global publisher. (p. xi)

Pavlik goes on to present a book-length survey of new tools for journalists, ethical challenges arising from mobile reporting, new business models, new relationships with audiences, and journalism education. Though in 2001 he could not foresee the smartphone, his PDA-enhanced reporters certainly suggested the very issues that face their smartphone-equipped peers.

As Pavlik suggested, the smartphone has changed both the reporting of and the consumption of news. Westlund (2014) provides an overview of how “legacy news media” distribute news through smartphones and other mobile media. Though they continue to use browsers and web pages accessed on the phones, news organizations also publish through SMS (short message service) and MMS (multimedia messaging service) to push alerts, as well as through their own proprietary apps (p. 137). Not surprisingly, with more news reports online, more people use smartphones to access news (pp. 139–141).

The news industry remains acutely interested in smartphones. Watkins, Hjoreth, and Koskinen (2012), for example, introduce a special issue of *Continuum: Journal of Media & Cultural Studies* that examines smartphones and the news as well as the larger phe-

nomenon of mobile journalism. Molyneux (2014) offers a more current look at journalists and their daily work, surveying a national sample about how they “use smartphones in their daily work and its impact on their routines and practices, [the] role of the organization for which they work in the adoption of smartphones, and factors that influence the adoption of smartphones by journalists” (p. 83). Hsu (2014) does something similar with editors. After surveying the relevant literature on “competences required for digital publishing editors,” Hsu interviewed experts to develop a list of “30 critically essential competences” for digital publishing editors (p. 11). A few years earlier, Wang, Lin, and Chuah (2012) had studied competencies for digital journalists and developed a model that included “photographing, photo editing, Internet, and other multi-skills” as well as teamwork, autonomous work styles, and personal and emotional self-management (p. 168). Turning to the newsroom itself, Schäfer (2011) discusses the challenges of fact checking in science reporting and “the changes that have come about through the use of the Internet and the availability of smartphones and tablet computers” (p. 1). Not all studies see smartphones as the center of a changing journalism. Reporting on a study of Brazilian newsrooms, Barsotti (2014) concludes “that smartphones have not been agents of change. In contrast, there is a palpable emergence of a new journalistic language for tablets, underpinned by the logic of sensations, relying on reception via three senses: sight, hearing, and touch” (p. 112).

B. News audiences

With these kinds of mixed messages in the newsroom, news organizations struggle to find ways to reach their audiences. Mzezewa (2015) reports a project by the CBS broadcast network in the U.S. to develop a streaming news app. At about the same time, Schurz Communications Inc. teamed with RedPost to launch a “smart newsrack” to reach newspaper readers; the app even allowed them to count the number of smartphones in WiFi range of its services (N.Y., 2014). A few years earlier Hollander, Krugman, Reichert, and Avant (2011) examined one newspaper’s experiment with replacing its daily print edition with a digital one.

“In-depth interviews with 20 former readers of the newspaper found the device, the Kindle DX, to be generally liked for its readability but a poor substitute for the published version of the newspaper” (p. 126).

Audience access to and preference for digital news generally remains a puzzle for publishers. Some research indicates that it may be too early to see widespread adoption of mobile news readers. A “national survey of U.S. Internet users suggested that despite the excitement about newer, more portable devices [smartphones, e-readers, tablets], not all devices are equally ‘newsful’” (Chyi & Chadha, 2012, p. 431). The researchers further discovered that only a small proportion of those interested in news in the U.S. sought news on portable devices. Wei, Lo, Xu, Chen, and Zhang (2014) found more rapid adoption among Asian college students, with press freedom as a key predictor. Their survey “results show that using mobile phones to read news and follow news posts on mobile-accessible microblogs is rapidly on the rise and significant differences among respondents in the four cities [Shanghai, Hong Kong, Singapore and Taiwan] exist; press freedom was found to be negatively related to reading and following news via mobile phones” (p. 637). Shim, You, Lee, and Go (2015) found that the type of news (political news, entertainment news) made a difference when it came to acceptance of news on mobile devices. Information-seeking predicts a general openness to mobile news as does the accessibility of the technology. Bolton (2013) also considers the type of news suitable for smartphones and other mobile platforms, but examines only gossip, tracing its reportorial history from the 17th century to the present. Smartphones, with their immediacy of news access, make ideal platforms for reporting gossip.

C. News apps

The location awareness of smartphones adds to their value for various kinds of reporting. Galily (2014) discusses the idea of the “second screen” in which sports viewers (typically on television but perhaps in stadium) supplement the broadcast with information on a smartphone or tablet. Gil de Zúñiga, Garcia-Perdomo, and McGregor (2015) also studied second screens, but in relation to politics. They found that “discussing and pursuing further information are both central motivations for second screen use. Furthermore, results suggest second screening for news is a significant predictor of online political par-

ticipation and a key link between TV news and political engagement as this relationship is fully mediated” (p. 793).

Some location-based services for smartphones, such as Foursquare and Fieldtrip, can “allow news organizations to shape news in an innovative and engaging way,” an idea that Silva (2014, p. 23) connects with the 17th-century “culture of curiosities” that helped to give birth to the news industry. Other location-based news apps focus on traffic and weather reporting, but this may not satisfy all users. Beginning with the fact that young adults increasingly seek news on their smartphones and prefer location-based services, Weiss (2013) “highlights that a gap exists between what news consumers, particularly young adults, are doing and using on their smartphones and what news organizations are able to provide” (p. 435). The LocaNews project in Norway directly addresses that question of how and what news organizations can do with location-based services on a GPS-equipped smartphone. Nyre, Bjørnstad, Tessem, and Øie (2012) describe the project and tested it with both news producers (journalists and editors) and news consumers. Their report “deals with four issues: putting stories on the map, the characteristics of ‘zoom in stories,’ the construction of an implied position for the readers, and finally the formulation of news criteria that focus on spatial proximity instead of temporal actuality” (p. 297). Liebhold (2010) extends this thinking by examining augmented reality applications for smartphones. These apps allow the incorporation of hyperlinks with maps, news, and other geocoded or sensor information.

The capabilities of smartphones, including apps for sending news, have created a new kind of journalist—the citizen journalist who records events and sends that information to media companies (Gye, 2007). Melinescu (2013) notes that not all of these have the skills or training to be accurate reporters, but they nonetheless work in competition with traditional news media.

D. Sustainability of news operations

Both publishers and editors wrestle with profitability and sustainability of mobile journalism, with many regarding the smartphones as key to developing the model. Describing the situation in Spain, Costa Sánchez (2013) assesses “the characteristics of the main models . . . with the intention to highlight the necessary improvements for their optimal use” (p. 7). Kirchhoff (2010) reports on concerns that the loss of

newspapers will adversely affect civic life. U.S. Congressional interest focused on whether smartphones and similar devices triggered the decline of newspapers or whether larger social changes might account for that decline. She asks a series of questions: Is it time for governmental policy changes? for changing copyright laws? for increased funding for public broadcasting? for re-visioning newspapers as nonprofits? Neto and Lopes (2014) see such changes as an opportunity for public service broadcasters “to

rediscover their path.” They report “an analysis to the applications for smartphones from the British broadcaster, BBC, and the Portuguese one, RTP,” asking what kinds of content and features prove successful (p. 33).

Smartphones also appear in the news. Kang, Lee, and De La Cerda (2015) “examine TV news networks’ coverage of the smartphone from the news framing perspective,” finding that the news “emphasized ease of use, performance, and Apple issues” (p. 174).

6. Health

The area of health communication focuses on health care teams-patient communication as well as on communication among the members of the team. Smartphones can play a role in both areas, as well as in ongoing education for health care professionals and information access for patients.

Mobile media provide great scope for improved health care, both physical and mental, and tele-medicine. Barak and Grohol (2011) offer a summary of research about online mental health intervention. Though much of the research they report addresses studies of educational webpages and interactive sessions based on traditional computing, they note that “The use of texting or short message service (SMS), mobile communications, smart phone applications, gaming, and virtual worlds extends the intervention paradigm into new environments not always previously considered as intervention opportunities” (p. 155). Agoulmine, Ray, and Wu (2012), on the other hand, look to a future of significant differences in tele-health care. The coupling of biosensors and smartphones, for example, opens the door to new paradigms of medical treatment, though they recognize the need for more work in terms of standardization and interoperability. Brandenburg, Worrall, Rodriguez, and Copland (2013) also look to the future and suggest ways that smartphones and tablets could play a role in the management of aphasia. Seeing these devices as cost-effective, they explore the “potential functions of speech pathology applications” “with the aim of improving the organization and direction of research in this area” (p. 444). Kratzke and Cox (2012) also spell out a number of apps available for health intervention that could pos-

itively affect medical care. The smartphone offers several very new approaches to health care.

Examining the treatments of co-morbidities (that is, “a set of physical and mental limitations”), Bisio, Lavagetto, Marchese, and Sciarrone (2015) propose an implementation of “Ambient Assisted Living platforms” and describe “a specific smartphone-centric architecture where smartphones are employed not only as hubs of the health information but also as sensing, processing, and transmitting devices” (p. 34).

At least one study has investigated how doctors and surgeons use smartphones to access up-to-the minute research in their specialities (Smart, 2012). Though smartphones and similar mobile media have shown promise in healthcare, they may raise questions in terms of health communication, depending on how patients perceive them. Miller, Ziegler, Greenberg, Patel, & Carter (2012) “tested the hypothesis that participants with increased knowledge about medical applications of PDAs/smartphones have more positive perceptions of physicians using them.” They found support for the hypothesis and “suggest that perhaps physicians should take time to share their PDA/smartphone findings with their patients to improve patients’ perceptions of their use” (p. 54).

Such technologies also raise ethical issues. Christie, Patrick, and Schmuland (2015) provide a perspective on “the ethical, legal, and social implications of medical technology innovations [including smartphones], the potential benefits available to individuals and society if they are used ethically, and the . . . launch of a consultation document on collective action needed to promote this technology’s implementation” (p. 867).

7. Daily Living

Cultural aspects of smartphone use and the influences of smartphones in the marketplace include a wide range of groups and behaviors. In addition to the interaction of smartphones and youth (children and teens) reviewed above, scholars have turned their attention to population segments such as families (Frissen, 2000) and older groups (Crow & Sawchuk, 2014; Hjorth, Qiu, Zhou, & Wei, 2014); and emotional work within families or social groups (Vincent & Fortunati, 2014; Clark, 2014). Others attend to race: Some remark on differences in patterns of smartphone use that go beyond economic factors such as affordability. The Australian Communications and Media Authority report, cited earlier, noted that among American teens, African-American and Hispanic youth spent more time on their phones with music, games, and videos than other ethnic groups (ACMA, 2010, p. 19). Nicholson (2014) proposes “the mobilization of race and the racialization of mobility” as two aspects of “a politics of mobility.” The former “posits that the idea of race emerged from encounters across differences, which were, and are, geographic, corporeal, material, and ideological” while the latter “posits that contemporary mobile media, mobile practices and, by extension, even mobile media studies, are circumscribed by race in white-settler societies. . . . The racialization of mobility emphasizes that race is ‘never not a factor, never not in play’” (p. 346).

A. Interpersonal communication

The link between social media and smartphone apps makes these phones powerful tools for managing interpersonal relationships. While the phones themselves have not played a direct role in redefining interpersonal norms, they have indirectly influenced how people communicate, present themselves, and maintain friendships and family activities. Turkle (2012) has probably done more than anyone else to track how relationships and personal identity have changed under the influences of digital technologies. Though she does not specifically address smartphones, her conclusions about intimacy, privacy, community, and relationships clearly apply. The addition of location services to smartphones has enhanced social media and social management. Katz and Lai (2014) comment that this

“allow[s] people to retrieve information without directly engaging in conversation with a particular contact” (p. 54). This in turn opens up new information sources to users, whether that information describes people or locations. When coupled with social media and interpersonal communication, smartphones add another tool to the impression management, signaling, self-presentation, and privacy that Turkle addresses.

Pettegrew and Day (2015) argue that communication studies of the role of computer-mediated communication (including smartphones) in interpersonal relationships have focused too much on what these technologies do to face-to-face interactions. Their “exploratory study provides an initial empirical base for communication scholars to reconsider their reliance on the treatment of computer mediated communication and mobile technology . . . as an addendum to [face-to-face] communication, and instead to recognize that individuals use mobile communication to develop close relationships across a wide variety of interrelated and converging contexts” (p. 122). Boase and Kobayashi (2012) refine that observation in a study of U.S. adult smartphone users. Based on data gathered from apps installed on phones, they argue that “respondents typically used voice calls to bridge and text messages to bond; heavy users bridge using their mobile phones more than light users; and media multiplexity occurs when respondents bond closely with a small number of ties through both text messages and voice calls” (p. 1). This reliance on smartphones for managing relationships extends to families. Madianu (2014) notes that expatriate Filipino “users treat smartphones as integrated environments of communicative opportunities and exploit the differences within media in order to express emotions and manage their relationships with their family members who remain in the Philippines. For smartphone users, being online emerges as the default position and there is evidence that new media become constitutive of relationships in situations of extreme separation. However, technology cannot overcome difficulties that are fundamentally social” (p. 667).

An international study of smartphone usage among college students offers some interesting data about interpersonal relationships and their manage-

ment. Mihailidis (2014) reports that “findings point to a population tethered to their mobile devices primarily through social networking apps, to the extent that they find it increasingly difficult to distinguish relationships that exist in their pockets from those that exist in their physical surroundings. While the participants acknowledged the diverse and participatory capacity of mobile devices, their dependence on the phone for connecting to peers left them skeptical of the phone’s efficacy for productive connectivity, vibrant communication, and diverse information consumption in daily life” (p. 58).

Given the complexity of interpersonal relationships, researchers have found a wide range of variables and influences on interpersonal communication when they pair that with smartphones. Studying Facebook users, Chang (2015) examined social capital (bonding, bridging) and found that “smartphone users developed and maintained social capital more easily and at the same time were interrupted more than non-smartphone users” (p. 299). In a cross-national study (Denmark and the U.S.) of social norms, Shuter and Chattopadhyay (2014) noted differences in face-to-face behaviors and the use of smartphone functions in various business and personal settings. With a sample of Finnish smartphone users, Verkasalo, López-Nicolás, Molina-Castillo, and Bouwman (2010) found that social norms did not play as strong a role as self-reported behavioral control or perceived enjoyment in regulating smartphone use in interpersonal settings. Bian and Leung (2014) factor in different psychological variables (shyness, loneliness) “to predict . . . smartphone addiction symptoms and social capital.” They identified “five addiction symptoms: disregard of harmful consequences, preoccupation, inability to control craving, productivity loss, and feeling anxious and lost” (p. 159) and note that different reasons for using a smartphone correlated with different symptoms and different social interaction patterns.

Toutain, Bouabdallah, Zemek, and Daloz (2011) examine context awareness, social acceptance, and interpersonal communication in conjunction with smartphone capabilities, which they argue extend the classical telephone network effects.

B. Women

Several scholars have examined how smartphones have affected women. Frizzo-Barker and Chow-White (2012) interviewed “women who daily use smartphone apps to understand how they use and

make meaning through social media and popular apps to do with parenting (using the ‘Total Baby’ app), fitness (‘Runmete’), finances (‘Mint’), and daily tasks (‘Evernote’)” (p. 580). Using a technofeminist theoretical stance, they argue that the smartphones both “facilitate and restrain gender power relations.”

Others see the impact of smartphones more clearly on women in the Arab world. Odine (2013) notes that smartphones remain largely free of government intrusion and thus enable women to more easily raise issues of inequality, attend university, and enter the workforce. Waltrip (2013, 2015) studies Muslim women in Copenhagen. “These second-generation female immigrants partake in self-presentation and interpersonal audiencing through mobile technologies on an unprecedented scale, impacting in the process on the understandings and appropriations of the city, where physical places and virtual space become profoundly entangled” (2013, p. 555). In her later study, she reports “how morality, modesty, and gender- and generational relations become reconfigured in the ways in which young women use the smartphone and social media to navigate their everyday lives” (p. 49).

C. Cultures

A large number of researchers have noted cultural differences in smartphone usage. Hjorth (2014) explores the relationships among place, co-presence, gender, and camera phones in South Korea. Yoon (2008) also provides information about smartphones and young people in South Korea. Watkins, Kitner, and Mehta (2012) compare smartphone use in rural and urban India, where uses ranged from development communication to personal uses. Other researchers have examined smartphone users in various countries in Africa—Cameroon, Chad, Mali, Nigeria, Senegal, and Sudan—(Bruijn, Brinkman, & Nyamnjoh, 2013); Asia—primarily youth—(Hemelryk Donald, Dirndorfer Anderson, & Spry, 2010); Botswana (Lesitaokana, 2014); Germany (Gerpott, 2015); Greece (Economides & Grousopoulou, 2008); and Spain (Diego-González, Guerrero-Pérez, & Etayo-Pérez, 2014, Diego González, Etayo Pérez, & Guerrero, 2014),

Berry, Martin, and Yue (2003) examine the role that mobile phones play in the developing mobile queer cultures in Asia. Compiled from research done before the advent of the smartphone, it nonetheless identifies the cultural aspect of a mobile technology that the added features of the smart phone only highlights and increases.

D. Politics and government

Smartphones and their connectivity to the Internet, news, and social media also have implications for civic life. As part of her study of teen use of mobile phones (some smartphones and many older, simpler ones), Stald notes:

Institutions, movements, politicians, and individuals have to deal with the fact that information is mobile, users are mobile, and democratic actions are more individualized because of personal digital media. At this point, Fortunati is a step ahead of most researchers when she claims the mobile phone to be a fundamental means of democracy in modern society: “Its having become a new information frontier and a crucial means of interaction with Public Administration makes it an even more fundamental instrument of constructing citizenship in postmodern society” (Fortunati, 2003, pp. 241–242). Thus, the mobile phone is significant to young people in helping them to identify themselves as citizens . . . (Stald, 2007, p. 209)

Campbell and Kwak (2014) review “a program of work geared at understanding the ways in which mobile communication helps and hinders various aspects of what we call ‘civic life,’ which refers to more mundane (yet still highly important) aspects of citizenship, including civic engagement, political involvement, and open dialogue with others” (p. 409). Other studies take a narrower focus and examine the use of smartphone access to social media in protests in Hong Kong (Law, 2014), Spain (Monterde & Postill, 2014), and South Africa (Walton, 2014). Mariscal, Gamboa, and Rentería Marín (2014) report on Latin American democratization of Internet access.

In a study of college students and political behavior, Yamamoto, Kushin, and Dalisay (2015) found that “online political expression enhanced the effects of political mobile apps, traditional offline, and online media, and social media on political participation” (p. 880). They note that this study has implications for civic engagement among a younger population. On the other side of the equation, politicians have also used mobile apps to increase interaction with their constituents. Looking at the practices of the MPs in the Canadian Parliament, Francoli (2009) finds “more opportunities for consultation,” but only a few politicians use the technology “for greater participation” (p. 215).

Smartphones also enable government services. Lindsay (2010) reviews the ways that government

offices, as well as emergency-oriented organizations, use social media for crisis response. He indicates two general approaches: “social media can be used somewhat passively to disseminate information and receive user feedback via incoming messages, wall posts, and polls” and they can function as emergency management tools, with smartphones, for example, used for data collection and monitoring (p. 287).

Another confluence of smartphones and mobile media with government interests occurs in the policy and regulatory arenas. Spry (2010) reports on these debates in Australia and Japan while Goggin (2010) looks at government responses to “moral panics” about youth and smartphones in Australia.

E. Creative and cultural life

Other uses for the smartphone include art (Duarte & de Souza e Silva, 2014; Kim, 2014; Sheller, 2014), navigation (Verhoeff, 2012), reading (Baron, 2014), photography (Chesher, 2012; Palmer, 2012, 2014), sports (Evers, 2014), teaching cultural norms of romance and intimacy (Lasén, 2014), storytelling (Farman, 2014), and memory (Garde-Hansen, 2011). Garde-Hansen, Hoskins, and Reading (2009) investigate this latter area in an edited volume. Smartphones have become auxiliaries to our memories, storing photos, diaries, records, and many other things. In a chapter on wearable memory, Reading writes:

the mobile phone is no longer only a handy communication device but is significant in its contribution to an emergent form of digital memory, that I have named, “the memobile.” Mobile digital phone memories or memobilia are wearable, shareable multimedia data records of events or communications. They are captured on the move, easily digitally archived, and rapidly and easily mobilized. They may be saved as a personal note, shared via the mobile-phone handset with a chosen few, or circulated to the many by individuals or via websites. They can include an image of a pet shared via the mobile handset with a co-present friend; keeping an archive of texts from a boyfriend; recording ambient sounds in a pub to listen to later; or capturing a mobile-phone video of a London fire and sending it to the BBC. (Reading, 2009, p. 81)

For Garde-Hansen, all of this becomes part of what she calls “digital witnessing,” creating a memory record much more comprehensive than human memory.

The ubiquity of cameras on mobile phones has dramatically expanded the presence of images in con-

temporary culture. Not only do such readily accessible camera encourage citizen journalism, they also change the smartphone to a “data collection” device. Palmer (2012) argues that the rise of smartphones “signals a shift in thinking about photographs as being primarily about *representation* to thinking about photographs as *information*” (p. 90, italics in original). He further points out that companies aggregate and analyze these digital images for a variety of corporate (and even governmental) purposes.

Noting that, despite its popularity, mobile video remains under-researched, Goggin (2014) proposes a taxonomy of such video, including “videos and movies recorded on mobiles . . . ; Internet-based video sharing sites . . . ; social networking and media sites such as Facebook; . . . made-for-mobile content . . . ; full-length movies; television programs; short videos; direct broadcast of television to mobile platforms; smartphone or tablet apps . . . ; and video in games” all of which smartphone users can access (p. 146). Though he does not include them here, elsewhere in his essay he suggests that video phoning and video conferencing apps would also fit the category. Schleser (2014) provides a complementary history of mobile film making.

Not surprisingly, mobile video offers a new approach to and platform for entertainment. Aguado and Martínez (2014) claim that “entertainment lies at the core of the mobile phone mediatization process—

the transformation of mobile phones into mobile media” (p. 182). Using the categories of traditional entertainment research, they provide a snapshot of the impact of entertainment on smartphones. Diego-González, Guerrero-Pérez, and Etayo-Pérez (2014) and Diego González, Etayo Pérez, and Guerrero (2014) survey mobile screen (including smartphone) use in Spain. They note an increasing preference for mobile viewing, particularly among the young. These viewers prefer foreign fiction series and films.

Lin, Li, Xie, Sun, Salamatian, and Wang (2013) report on the technical aspects of providing mobile video to smartphones, examining the possibilities of using peer WiFi mobile networks.

Smartphones add sound to location. Behrendt (2012) points out how “placed sounds” change people’s experience of their locations, enabling them to immerse themselves in physical and virtual worlds simultaneously. Smartphones also function as listening devices. In addition to their prosaic role as telephone “handsets,” they also work as music players, a function that Apple built into the early iPhone as a way to combine it with the iPod music player. But smartphones change listening in other ways. Crawford (2012) argues that not only do people listen to these mobile phones (conversation, music, and so on) but that the phones listen to them, from taking dictation, to reporting biometric and location data—sometimes without the user’s conscious awareness.

8. Gaming

Many people have come to associate smartphones with gaming, even though the phones have many other apps. People who may never have touched a game console readily turn to a game on their smartphone as a way to pass time or to engage with friends. Richardson and Hjorth (2014) review the “rise of app-based media ecologies” (p. 257). “Casual mobile gaming,” they write, “is often characterized as a mode of engagement that requires only sporadic attention up to a threshold of around five minutes, hence the popular notion that casual games are the mobile phone’s predominant game genre” (p. 258). Keogh (2014) provides a more careful look at some of the better known casual games, including *Angry Birds*, which played a large role in the increasing popularity of these brief

games. Christensen and Prax (2012) looked carefully at the smartphone apps for the *World of Warcraft* game. They discuss “the ways in which these applications both reshape how we might think about and use technology, and how smartphones and mobile applications also reconfigure social, technological, and generic relations” (p. 731).

In games like these, Richardson and Hjorth (2014) argue, the distinction between casual gaming and “hardcore” gaming is fading as people engage in “location-based, navigational, and image-capture technologies” as part of gaming. “Historically, location-based games—referred to as urban games, big games, pervasive games, and mixed reality games—emerged out of avant-garde new media art, and involved cre-

ative experimentation with emerging media interfaces, platforms, and networks” (p. 260). More and more such games involve social media accessed through smartphones. Labeling these “pervasive computer games (PCGs),” Lemos (2011) maintains that this kind of game play produces “spatialization,” that is “to socially produce the space in which they are embedded.” Examining the forms of spatialization, he considers “the use of technology such as sensors and digital mobile networks (smartphones, PDAs, global positioning systems [GPSs], and augmented reality [AR] devices; radio frequency identification [RFID] tags and global system for mobile communications/general packet radio service [GSM/GPRS]; Wi-Fi and Bluetooth)” (p. 277).

Richardson (2011) makes the case for what she terms a “hybrid ontology” emerging from location-based games since they merge a sense of the body (including corporeal effects) with a sense of the virtual. She writes

Mobile media and game-play in both urban and domestic places evoke particular kinds of embodiment, indicative of emergent habitual and quotidian behaviors, gesturings, positionings, and choreographies of the body, at times partially determined by the culture of the user, at others by the technical specificities and demands of the interface. Location-based mobile games and applications also modify our experience and perception of “being online,” and effectively disassemble the actual/virtual dichotomy of Internet “being” into a complex and dynamic range of modalities of presence. (p. 419)

In a book-length study, Hjorth and Richardson (2014) present a detailed examination of gaming, based on

research in the Asia-Pacific region, in order to track how gaming has changed with the rise of casual and mobile gaming. After a review of the historical and social context of games, they follow the development of location-based and urban games before turning to the convergence of “social, locative, and mobile” games. Among other things, they observe “new gaming genres, media ecologies, emergent communities, and types of social labor” (p. 3). Sometimes this gaming leads to less direct social interaction in a given place as players substitute the mediated social interaction of the game. Other, location-based, games shift the boundaries of social and private place and lead to different kinds of urban interaction. Ultimately, Hjorth and Richardson argue that mobile gaming forms “part of broader media and cultural shifts” (p. 43). They later describe this shift as

a cultural turn towards a lusory sensibility, that is, in turn, affecting a playful sociality. This shift is seen in the integration of SNSs, mobile games, and playful apps, and the very ordinariness of that integrated use in our everyday lives. It is also apparent in our paratextual practices surrounding game play—from the uptake of mobile game merchandise (*Angry Birds* being the prime example), discussion and commentary in game and fan blogs, and in everyday creative engagement with and remixing of game content. (p. 139)

Games matter: More than just a way to pass the time, they represent a window onto a rapid cultural change and an ecosystem dominated by the smartphone. They also offer an, if not new, then changed mode of communication, as gamers interact with each other in ways different from their previous behaviors.

9. Issues

The widespread adoption of the smartphone has introduced or reintroduced a number of technology-related issues, including privacy, politeness, the digital divide, and theorization.

A. Privacy

Because the smartphone collects a wide range of user data, individuals consciously or unconsciously share a great deal about themselves and their habits. Falchuk and Loeb (2010) point out that some fea-

tures—buddy-mapping apps, for example—while entertaining, carry risks to privacy as they make users, their actions, and sometimes their data visible across networks. Sutanto, Palme, Tan, and Phang (2013) offer a theoretical model to understand the paradoxical trade-offs between privacy and better services or personalization. “To better understand this paradox, we build on the theoretical lenses of uses and gratification theory and information boundary theory to conceptualize the extent to which privacy impacts the

process and content gratifications derived from personalization, and how an IT solution can be designed to alleviate privacy concerns” (p. 1141). They then tested their solution with product marketing to see when users would knowingly surrender privacy. For Krontiris, Langheinrich, and Shilton (2014), the willingness to surrender privacy correlates with trust. They summarize the results of a seminar that offered an holistic view of the sharing of information collected by smartphones, privacy concerns, and trust in the information collectors.

Not surprisingly, people in different countries have different expectations of privacy. Callanan, Jerman-Blažic, and Blažic (2016), drawing a sample from Asian and African states, examine the “the level of privacy abuse and the awareness level of users when communicating and using mobile Internet. The study looks into the relationships and associations between the telecommunications market developmental level, the wealth of a country, users’ skills, the affordability of mobile technologies, the level of user tolerance of state-mandated content censorship, and related privacy threats” (p. 109).

Roux and Falgoust (2013) approach privacy from a different, but somewhat fascinating, avenue. Building on the philosophical theory of extended cognition, that is, a theory that holds that human thinking occurs “both within the brain and by way of tools such as a logician’s pen and paper, a mathematician’s calculator, or a writer’s word processing program,” they consider the implications for people’s interaction with their smartphones. In a series of thought experiments, “by comparing the differences in expectations of privacy between a citizen and the government, between an employee and a corporate firm, and between citizens alone, [they] show that expectations of privacy and injury are significantly affected by taking the cognitive role of smart devices into account” (p. 183).

B. Politeness

Nickerson, Isaac, & Mak (2008) examine the impact of mobile phone use in public places and present the results of an attitude survey conducted in several countries. Among other things, they found that gender, age, country, and work status influenced people’s reactions to phone use in public settings.

C. Digital divide

Given the cost of smartphones and of the subscription plans, these devices have separated wired and wireless users in new ways. Lee, Park, and Hwang

(2015) examined some of the differences in ownership and access, comparing the groups on measures such as communication competence and networking skills. They “concluded that smartphone use was likely to aggravate the gaps of demographics, access, and skills in the seamlessly connected media environment. Meanwhile, access gap made the most impact on information, communication, leisure/entertainment, and financial management activities online, followed by skill and demographic gaps” (p. 45)

D. Theory

Nørgård (2014) argues for new theories and new research approaches to smartphones and their uses such as gaming. Because these media involve not only perception (visual or auditory) but also physical engagement, researchers must represent their understanding in new ways and develop “new formations of studying, thinking and talking about activities and experiences in highly interactive media” (p. 219).

Researchers have also turned to smartphone apps to support their work. Hastall and Knobloch-Westerwick (2013) explain some ways to measure a person’s exposure to online content and proposes a method that combines both exposure data and self-report data. De Bruijne and Wijnant (2014) focus on improving survey response rates for smartphone surveys. They compare text message invitations, questionnaire design, layout, and closed-versus open-ended questions.

Xu, Li, Zhang, Miluzzo, and Chen (2014) examine a mobile crowdsourcing through the Crowd++ app “that accurately estimates the number of people talking in a certain place through unsupervised machine learning analysis on audio segments captured by mobile devices. Such a technique” they write, “can find application in many domains, such as crowd estimation, social sensing, and personal well being assessment” (p. 92).

These, of course, only illustrate some of the issues arising with smartphone use—the ones that have appeared in the recent literature. More research will no doubt appear on other topics like policies governing smartphone services, corporate and governmental uses of individual and aggregate data from smartphones, behavioral risks associated with smartphones, and so on. Communication scholars may also identify a number of indirect consequences of smartphone uses, of the kinds already noted with teen owners: the phone as status symbol and other nonverbal signals, the phone’s influence on relationships, and various kinds of relational negotiation.

10. Conclusion

The smartphone currently dominates all mobile phone sales, with user numbers rising and ever more younger owners making these phones their primary means of connection. As many of the researchers cited in this review have noted, the smartphone's capacity as a telephone may well constitute the least of its value. With more and more computing power incorporated into the phone, the smartphone serves as a mobile computer and as an always-on connection to the Internet. This changes how communication research should approach the smartphone.

Clearly communication scholars will continue to study the smartphone as a communication technology, for it does remain that. But the idea of communication embodied in this technology goes beyond conversation. The study of interpersonal communication has always included the content of any conversation along with the complex relational messages people share. The same thing occurs with the smartphone. But the phone also redefines "conversation" to encompass text messages, email, the sharing of photographs, joined game play, information exchanges, and almost anything that counts for symbolic meaning.

Research should build on what appears in this review. In addition to studying how one group—teens—use their smartphones, communication study can also look at other classes of users: older adults, retired people, parents, and so on. The teen users have made clear that the smartphone itself (even before one turns it on) has symbolic and status value. The phone also establishes individual and group identity, regulates interaction, shapes emotions, coordinates activities, creates new kinds of communicative behavior, and provides opportunities for extending regular behaviors (teen culture with all of its joys and risks). One could study each of these in the other age groups. Do retired people, for example, do what they always did or will they too invent new uses for smartphones? Similarly, one could ask how much the same values and behaviors appear in various cultures. To what extent does communication action remain constant across culture? Cultural communication patterns and societal needs will certainly shape smartphone use and impact, as has already occurred in Africa, with even simple phones at the center of banking innovation.

In fact, each of the major headings of this review suggests new avenues of research.

Education: The resistance of traditional schools to smartphones in the classroom, in the face of such rapid embrace of the technology, suggests that the culture has changed more than its pedagogy. Though not new, ubiquitous learning, for example, finds a much stronger foundation in these phones. How much of traditional classroom education has a purpose in an always-connected world? Do the subjects taught in traditional classrooms matter so much with permanent links to computing power and data networks? Will the ease of communication foster greater collaborative learning? Will the communication patterns introduced by the smartphone change the patterns of how people think, similar to the ways that writing has affected people's thought and work patterns?

Business: Businesses have reacted quickly to the possibilities introduced by the smartphone, both for their internal organizational communication and for their sales and marketing. The networked communication that the phones make possible has already given birth to new business models, like shared-ride services. More will surely follow. How do the network models of such usage manifest the interconnections of the supplier and the customer? What kinds of communication patterns emerge? Communication researchers should study how organizational communication changes: how effective are these tools for managing a complex organization? Some research has begun with smartphone marketing, to mixed results. Less has occurred with the location services of the smartphone factored into the marketing. Humans have traditionally defined themselves in terms of place, with many businesses depending on that. The smartphone extends an individual's place to the reach of the network, leaving business communication uncertain in its responses.

Journalism: Smartphones have changed every aspect of journalism, from the task of reporters (now augmented by "citizen journalists" recording the news on their phones) to the management of the newsroom, to the consumption of news. With more and more people receiving the news on their smartphone, how has the journalist's role changed? Has editing changed into

curating? Can news organizations shape opinion in the ways they used to do?

Health: Smartphones have changed health communication, with doctors and nurses now “seeing” patients via phone. The networking capacity of the phones has also increased information available to all: diagnostics, pharmaceuticals, care regimens, dangers. But the same networking has also increased health communication practices among all parties in the caregiving team. As the cited studies indicate, patients expect more information but health practitioners do not always know how to give it.

Daily Living: Here again, the smartphone affects people across the board, changing interpersonal and family communication patterns, affecting politics, providing new means of creative expression, and offering portable ways to participate in cultures and subcultures. Any one of these raises questions for communication research, not least of which involves adding the variable of the smartphone to established research models.

Games: Though a fair bit of research on gaming exists, communication scholars have not widely embraced it. But gaming in general and gaming on smartphone devices has introduced new communication behaviors and new models of communication. Both deserve careful research. For example, how does the role-playing in games incorporate different modes of communication? How does ludic talk resemble serious talk? How does game communication redefine or teach us about communication in general?

Issues: Though the few issues identified in the literature reported here do not do justice to the disruption posed by the smartphone, they do remind us that communication ethics, government regulation, consumer access, and privacy are never far away. More issues of power, interpersonal relations, corporate activity remain, awaiting more attention from critical communication research, for example.

A few of the scholars quoted here use the metaphor of “ecology.” In the larger world of media ecology, the smartphone appears as a part of a much more complex communication system. The media ecology approach sees the smartphone as part of a larger communication ecosystem, one that connects all the elements. People with smartphones, for example, adjust the patterns of their interpersonal communication, texting rather than talking in some instances. They watch video on the phone screens rather than on a television; they listen to music from an app rather than on

the radio; they connect with others indirectly through social networks on their phones, and so on. We would do well to begin to describe that system.

References

- ACMA (Australian Communications and Media Authority). (2010). Trends in media use by children and young people: Insights from the Kaiser Family Foundation’s Generation M² 2009 (USA), and results from the ACMA’s Media and communications in Australian families 2007. Melbourne: ACMA. Retrieved 15 October 2015 from http://www.acma.gov.au/webwr/_assets/main/lib310665/trends_in_media_use_by_children_and_young_people.pdf
- Admiraal, W., Akkerman, S., Huizenga, J., & van Zeijts, H. (2009). *Location-based technology and game-based learning in secondary education: Learning about medieval Amsterdam*. Paper presented at the meeting of the International Communication Association, Chicago, IL.
- Agoulmine, N., Ray, P., & Wu, T.-H. (2012). Efficient and cost-effective communications in ubiquitous healthcare: Wireless sensors, devices and solutions. *IEEE Communications Magazine*, 50(5), 90–91. <http://doi.org/10.1109/MCOM.2012.6194387>
- Aguado, J. M., & Martínez, I. J. (2014). Feeding digital omnivores: The impact of mobile media in digital entertainment. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 181–194). New York and London: Routledge.
- Akpojivi, U., & Bevan-Dye, A. (2015). Mobile advertisements and information privacy perception amongst South African Generation Y students. *Telematics & Informatics*, 32(1), 1–10. <http://doi.org/10.1016/j.tele.2014.08.001>
- Ali, G., Madni, A. R., Islam, H. tul, & Husnain, N. (2014). Mobile phone advertisements create false need: Exploring usage & liking of mobile phones & advertisements by youngsters. *Global Media Journal: Pakistan Edition*, 7(2), 7–17.
- Associated Press. (2015, November 10). Old laws collide with digital reality in teen sexting case. Retrieved November 15, 2015 from <http://www.nytimes.com/aponline/2015/11/13/us/ap-us-sexting-teens.html>
- Avidar, R., Ariel, Y., Malka, V., & Levy, E. C. (2013). Smartphones and young publics: A new challenge for public relations practice and relationship building. *Public Relations Review*, 39(5), 603–605. <http://doi.org/10.1016/j.pubrev.2013.09.010>
- Avidar, R., Ariel, Y., Malka, V., & Levy, E. C. (2015). Smartphones, publics, and OPR: Do publics want to engage? *Public Relations Review*, 41(2), 214–221. <http://doi.org/10.1016/j.pubrev.2014.11.019>

- Balraj, S., Pandian, A., Nordin, M. Z., Nagalingam, S., & Ismail, J. [2013]. Young people and new media: Social uses, social shaping, and social consequences. Malaysian Communication and Multimedia Commission. Retrieved 16 October 2015 from http://www.skmm.gov.my/skmmgovmy/media/General/pdf/USM_Young_People_New_Media_1.pdf
- Barak, A., & Grohol, J. M. (2011). Current and future trends in internet-supported mental health interventions. *Journal of Technology in Human Services, 29*(3), 155–196. <http://doi.org/10.1080/15228835.2011.616939>
- Baron, N. S. (2014). Does mobile matter? The case of one-off reading. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 225–235). New York and London: Routledge.
- Barone, J. C. (2012). Mobility & connectivity: Shifts in teaching, learning, and providing live news. *Global Media Journal: American Edition, 1*–31.
- Barsotti, A. (2014). Two screens, two paths: News production for smartphones and tablets on the Brazilian newspaper scene. *ISOJ Journal, 4*(1), 112–132.
- Behrendt, F. (2012). The sound of locative media. *Convergence: The Journal of Research into New Media Technologies, 18*(3), 283–295. <http://doi.org/10.1177/1354856512441150>
- Benson-Allott, C. (2011). Cinema's new appendages. *Film Quarterly, 64*(4), 10–11.
- Berry, C., Martin, F., & Yue, A. (2003). *Mobile cultures: New media in queer Asia*. Duke University Press.
- Bian, M., & Leung, L. (2014). Smartphone addiction: Linking loneliness, shyness, symptoms, and patterns of use to social capital. *Media Asia, 41*(2), 159–176.
- Bickford, T. (2013). Children's music culture: Commerce, technology, and tradition. In D. Lemish (Ed.), *The Routledge international handbook of children, adolescents, and media* (pp. 134–140). London and New York: Routledge.
- Bisio, I., Lavagetto, F., Marchese, M., & Sciarrone, A. (2015). Smartphone-centric ambient assisted living platform for patients suffering from co-morbidities monitoring. *IEEE Communications Magazine, 53*(1), 34–41. <http://doi.org/10.1109/MCOM.2015.7010513>
- Boase, J., & Kobayashi, T. (2012). *Bonding and bridging with multimedia mobile phones: A study using the Communication Explorer smartphone application*. Paper presented at the annual meeting of the International Communication Association, Phoenix, AZ.
- Bolton, K. (2013). Mediatized gossip: From printed pamphlets to the electronic present. *Annual International Conference on Journalism & Mass Communications, 137*–139. http://doi.org/10.5176/2301-3710=_JMComm13.08a
- boyd, d. (2014). *It's complicated: The social lives of networked teens*. Yale University Press.
- Brandenburg, C., Worrall, L., Rodriguez, A. D., & Copland, D. (2013). Mobile computing technology and aphasia: An integrated review of accessibility and potential uses. *Aphasiology, 27*(4), 444–461. <http://doi.org/10.1080/02687038.2013.772293>
- Bruijn, M. de, Brinkman, I., & Nyamnjoh, F. (2013). *Side@ways: Mobile margins and the dynamics of communication in Africa*. African Books Collective.
- Buckingham, D. (2011). Foreword. In M. Thomas (Ed.), *Deconstructing digital natives: Young people, technologies, and the new literacies* (pp. ix–xi). New York and London: Routledge.
- Callanan, C., Jerman-Blažič, B., & Blažič, A. J. (2016). User awareness and tolerance of privacy abuse on mobile Internet: An exploratory study. *Telematics & Informatics, 33*(1), 109–128. <http://doi.org/10.1016/j.tele.2015.04.009>
- Campbell, S. W., & Kwak, N. (2014). Mobile communication and civic life: Implications of private and public uses of the technology. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 409–418). New York and London: Routledge.
- Campbell-Kelly, M., Garcia-Swartz, D., Lam, R., & Yang, Y. (2015). Economic and business perspectives on smartphones as multi-sided platforms. *Telecommunications Policy, 39*(8), 717–734. <http://doi.org/10.1016/j.telpol.2014.11.001>
- Chang, H.-J. (2015). Social capital or social interruption: The impact of smartphone use. *International Journal of Mobile Communications, 13*(4), 299–316. <http://doi.org/10.1504/IJMC.2015.069129>
- Chang, K. (2013). E-book industry trends in Korea. *Publishing Research Quarterly, 29*(3), 244–251. <http://doi.org/10.1007/s12109-013-9323-6>
- Chao, H-C, & Wu, T-Y. (2008). Mobile e-learning for next generation communication environment. *International Journal of Distance Education Technologies, 6*(4), 1–13.
- Chappel, R., & Paliwal, K. (2014). An educational platform to demonstrate speech processing techniques on Android based smart phones and tablets. *Speech Communication, 57*, 13–38. <http://doi.org/10.1016/j.specom.2013.08.002>
- Chesher, C. (2012). Between image and information: The iPhone camera in the history of photography. In L. Hjorth, J. Burgess, & I. Richardson (Eds.), *Studying mobile media: Cultural technologies, mobile communication, and the iPhone* (pp. 98–117). New York and London: Routledge.
- Cho, W., Jung, Y., & Im, J.-H. (2014). Students' evaluation of learning management systems in the personal computer and smartphone computing environments. *International Journal of Mobile Communications,*

- 12(2), 142–159. <http://doi.org/10.1504/IJMC.2014.059735>
- Christensen, C., & Prax, P. (2012). Assemblage, adaptation and apps: Smartphones and mobile gaming. *Continuum: Journal of Media & Cultural Studies*, 26(5), 731–739. <http://doi.org/10.1080/10304312.2012.706461>
- Christie, G. P., Patrick, K., & Schmuland, D. (2015). Consultation for collective action on personalized health technology: Eliminating ethical, legal, and social barriers for individual and societal benefit. *Journal of Health Communication*, 20(8), 867–868. <http://doi.org/10.1080/10810730.2015.1063404>
- Chuang, Y.-T. (2015). SSCLS: A smartphone-supported collaborative learning system. *Telematics & Informatics*, 32(3), 463–474. <http://doi.org/10.1016/j.tele.2014.10.004>
- Chyi, H. I., & Chadha, M. (2012). News on new devices. *Journalism Practice*, 6(4), 431–449. <http://doi.org/10.1080/17512786.2011.629125>
- Cingel, D. P., Lauricella, A. R., Wartella, E., & Conway, A. (2014). Predicting social networking site use and online communication practices among adolescents: The role of access and device ownership. *Media & Communication*, 2(2), 1–30.
- Clark, L. S. (2013). *The parent app: Understanding families in the digital age*. New York: Oxford University Press.
- Clark, L. S. (2014). Mobile media in the emotional and moral economies of the household. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 320–332). New York and London: Routledge.
- Costa Sánchez, C. (2013). Prensa en el Smartphone modelos aplicados en los diarios españoles y necesidades de desarrollo [Newspapers on the smartphone models apps in the Spanish press and the needs of development.], *Icono 14*, 11(2), 7–30. <http://doi.org/10.7195/ri14.v11i2.591>
- Crawford, K. (2012). Four ways of listening with an iPhone: From sound and network listening to biometric data and geolocate tracking. In L. Hjorth, J. Burgess, & I. Richardson (Eds.), *Studying mobile media: Cultural technologies, mobile communication, and the iPhone* (pp. 213–228). New York and London: Routledge.
- Crow, B., & Sawchuk, K. (2014). Ageing mobile media. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 280–290). New York and London: Routledge.
- Crowe, R., & Middleton, C. (2012). Women, smartphones and the workplace. *Feminist Media Studies*, 12(4), 560–569. <http://doi.org/10.1080/14680777.2012.741872>
- Cuesta M., Ó. J. (2012). Consumo musical: Tensiones entre emisoras musicales juveniles y dispositivos portátiles. [Music consumption: Tensions between youth music stations and mobile devices]. *Cuadernos de Información*, 30, 73–82.
- Cumiskey, K. M. (2014). The use of mobile media and the struggle for women’s empowerment. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 365–374). New York and London: Routledge.
- Curwen, P., & Whalley, J. (2014) Structure of global telecommunications markets: Operators. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 65–80). New York and London: Routledge.
- Davies, C., & Eynon, R. (2013). *Teenagers and technology*. London and New York: Routledge.
- Dawson, D. (2012). Discourse analysis in new media: Agency with modern technology. *Topics in Linguistics*, (9), 18–23.
- De Bruijne, M., & Wijnant, A. (2014). Improving response rates and questionnaire design for mobile web surveys. *Public Opinion Quarterly*, 78(4), 951–962. <http://doi.org/10.1093/poq/nfu046>
- de Peuter, G., Brophy, E., & Cohen, N. S. (2014). Locating labor in mobile media studies. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 439–449). New York and London: Routledge.
- de Reuver, M., Nikou, S., & Bouwman, H. (2015). The interplay of costs, trust and loyalty in a service industry in transition: The moderating effect of smartphone adoption. *Telematics & Informatics*, 32(4), 694–700.
- Dean, J. (2009). *Democracy and other neoliberal fantasies: Communicative capitalism and left politics*. Durham: Duke University Press.
- DeKay, S. H. (2014). McLuhan redivivus. *Business & Professional Communication Quarterly*, 50–51. <http://doi.org/10.1177/2329490613517930>
- Diego González, P., Etayo Pérez, C., & Guerrero, E. (2014). Digue’m Quina Pantalla Fas Servir I et Diré Quin Contingut Veus: El Cas Dels Internautes Espanyols [Tell me the screen you use, and I will tell you the content you watch: The case of Spanish Internet users]. *Trípodos*, 35, 157–177.
- Diego-González, P., Guerrero-Pérez, E., & Etayo-Pérez, C. (2014). Televisión conectada en España: Contenidos, pantallas y hábitos de visionado [Connected TV in Spain: Contents, screens & viewing habits]. *Mediterranean Journal of Communication / Revista Mediterránea de Comunicación*, 5(1), 179–199. <http://doi.org/10.14198/MEDCOM2014.5.1.10>
- Draper, N. R. A. (2012). Is your teen at risk? Discourses of adolescent sexting in United States television news. *Journal of Children & Media*, 6(2), 221–236. <http://doi.org/10.1080/17482798.2011.587147>
- Duarte, F., & de Souza e Silva, A. (2014). Arte.mov, mobile-fest, and the emergence of a mobile culture in Brazil.

- In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 206–215). New York and London: Routledge.
- Durham, M. G. (2013). Children’s technologized bodies: Mapping mixed reality. In D. Lemish (Ed.), *The Routledge international handbook of children, adolescents, and media* (pp. 156–164). London and New York: Routledge.
- Economides, A. A., & Grousopoulou, A. (2008). Use of mobile phones by male and female Greek students. *International Journal of Mobile Communications*, 6(6), 729–749. <http://doi.org/10.1504/IJMC.2008.019822>
- Evers, C. (2014). Masculinity, sport, and mobile phones: A case study of surfing. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 375–384). New York and London: Routledge.
- Falchuk, B., & Loeb, S. (2010). Privacy enhancements for mobile and social uses of consumer electronics. *IEEE Communications Magazine*, 48(6), 102–108.
- Farman, J. (2014). Storytelling with mobile media: Exploring the intersection of site-specificity, content, and materiality. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 528–537). New York and London: Routledge.
- Feijóo, C. (2014). Next generation mobile networks and technologies: Impact on mobile media. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 81–93). New York and London: Routledge.
- Fortunati, L. (2003). The mobile phone and democracy: An ambivalent relationship. In K. Nyíri (Ed.), *Mobile democracy: Essays on society, self, and politics* (pp. 239–258). Vienna: Passagen Verlag.
- Fortunati, L. (2014). Understanding the role of mobile media in society: Models and theories. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 21–31). New York and London: Routledge.
- Francoli, M. (2009). The digital MP or how I learned to stop worrying and love MP. *Journal of Media Practice*, 10(2&3), 215–225. http://doi.org/10.1386/jmpr.10.2-3.215_1
- Frisson, V. (2000). ICTs in the rush hour of life. *The Information Society*, 16(1), 65–75.
- Frizzo-Barker, J., & Chow-White, P. A. (2012). “There’s an app for that”: Mediating mobile moms and connected careerists through smartphones and networked individualism. *Feminist Media Studies*, 12(4), 580–589. <http://doi.org/10.1080/14680777.2012.741876>
- Fulgoni, G. M. (2014). “Omni-channel” retail insights and the consumer’s path-to-purchase. *Journal of Advertising Research*, 54(4), 377–380. <http://doi.org/10.2501/JAR-54-4-377-380>
- Galily, Y. (2014). When the medium becomes “well done”: Sport, television, and technology in the twenty-first century. *Television & New Media*, 15(8), 717–724. <http://doi.org/10.1177/1527476414532141>
- Gao, T., Sultan, F., & Rohm, A. J. (2010). Factors influencing Chinese youth consumers’ acceptance of mobile marketing. *Journal of Consumer Marketing*, 27(7), 574–583. <http://doi.org/10.1108/07363761011086326>
- Garde-Hansen, J. (2011). *Media and memory*. Edinburgh: Edinburgh University Press.
- Garde-Hansen, J., Hoskins, A. & Reading, A. (Eds.). (2009). *Save as . . . digital memories*. New York: Palgrave-Macmillan
- Genova, G. L. (2010). The anywhere office = anywhere liability. *Business Communication Quarterly*, 73(1), 119–126.
- Gerpott, T. J. (2015). SMS use intensity changes in the age of ubiquitous mobile Internet access – A two-level investigation of residential mobile communications customers in Germany. *Telematics & Informatics*, 32(4), 809–822. <http://doi.org/10.1016/j.tele.2015.03.005>
- Gil de Zúñiga, H., Garcia-Perdomo, V., & McGregor, S. C. (2015). What is second screening? Exploring motivations of second screen use and its effect on online political participation. *Journal of Communication*, 65(5), 793–815. <http://doi.org/10.1111/jcom.12174>
- Goggin, G. (2010). Official and unofficial mobile media in Australia: Youth, panics, innovation. In S. Hemelryk Donald, T. Dirndorfer Anderson, & D. Spry (Eds.), *Youth, society, and mobile media in Asia* (pp. 120–134). London and New York: Routledge.
- Goggin, G. (2012). The iPhone and communication. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 11–27). New York and London: Routledge.
- Goggin, G. (2014). Mobile video. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 146–156). New York and London: Routledge.
- Goggin, G., & Hjorth, L. (2014a). Introduction: Mobile media research—state of the art. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 1–8). New York and London: Routledge.
- Goggin, G., & Hjorth, L. (Eds.). (2014b). *The Routledge companion to mobile media*. New York and London: Routledge.
- Goh, W. L., Bay, S., & Chen, V. H.-H. (2015). Young school children’s use of digital devices and parental rules. *Telematics & Informatics*, 32(4), 787–795. <http://doi.org/10.1016/j.tele.2015.04.002>
- Goldsmith, B. (2014). The smartphone app economy and app ecosystems. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 171–180). New York and London: Routledge.
- Grinols, A. B., & Rajesh, R. (2014). Multitasking with smartphones in the college classroom. *Business &*

- Professional Communication Quarterly*, 89–95. <http://doi.org/10.1177/2329490613515300>
- Gye, L. (2007). *Send us your photos now! Citizen journalism and mobile camera phones*. Paper presented at the Mobile Media Conference 2-4 July. University of Sydney. Sydney, NSW.
- Han, Y., Choi, Y., & Hong, J. (2012). Experience on the development of a ComSoc application for smart phones. *IEEE Communications Magazine*, 50(4), 106–112. <http://doi.org/10.1109/MCOM.2012.6178842>
- Hastall, M. R., & Knobloch-Westerwick, S. (2013). Caught in the act: Measuring selective exposure to experimental online stimuli. *Communication Methods & Measures*, 7(2), 94–105. <http://doi.org/10.1080/19312458.2012.761190>
- Hemelryk Donald, S., Dirndorfer Anderson, T., & Spry, D. (Eds.). (2010). *Youth, society and mobile media in Asia*. Abingdon, UK: Routledge.
- Herr-Stephenson, B. (2011). *Digital media and technology in afterschool programs, libraries, and museums*. MIT Press.
- Herrera, J. P. (2015). Aprendizaje móvil basado en micro-contenidos como apoyo a la interpretación instrumental en el aula de música en secundaria [Mobile learning based on microcontents as a support to instrumental performance in secondary school's music classroom]. *Pixel-Bit, Revista de Medios y Educacion*, 46, 119–136. <http://doi.org/10.12795/pixelbit.2015.i46.08>
- Hinman, S. (2013). Apps for audiology and speech-language pathology. *CASLPO Today*, 11(2), 17–19.
- Hjorth, L. (2014). Locating the visual: A case study of gendered location-based services and camera phone practices in Seoul, South Korea. *Television & New Media*, 15(1), 30–42. <http://doi.org/10.1177/1527476413483841>
- Hjorth, L., Burgess, J., & Richardson, I. (Eds.). (2012a). *Studying mobile media: Cultural technologies, mobile communication, and the iPhone*. New York and London: Routledge.
- Hjorth, L., Burgess, J., & Richardson, I. (2012b). Studying the mobile: Locating the field. In L. Hjorth, J. Burgess, & I. Richardson (Eds.), *Studying mobile media: Cultural technologies, mobile communication, and the iPhone* (pp. 1–7). New York and London: Routledge.
- Hjorth, L., Qiu, J. L., Zhou, B., & Wei, D. (2014). The social in the mobile: QQ as cross-generational media in China. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 291–299). New York and London: Routledge.
- Hjorth, L., & Richardson, I. (2014). *Gaming in social, locative and mobile media*. Palgrave Macmillan.
- Hollander, B. A., Krugman, D. M., Reichert, T., & Avant, A. J. (2011). The e-reader as replacement for the print newspaper. *Publishing Research Quarterly*, 27(2), 126–134. <http://doi.org/10.1007/s12109-011-9205-8>
- Hsu, M.-J. (2014). The study of critically essential competences for digital publishing editors. *Publishing Research Quarterly*, 30(1), 11–22. <http://doi.org/10.1007/s12109-013-9340-5>
- Humphry, J. (2014). Bricks, spies, and shoe phones: Researching mobile media in work and professional life. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 333–345). New York and London: Routledge.
- Ito, M., Antin, J., Finn, M., Law, A., Manion, A., Mitnick, S., Schlossbert, D., Yardi, S., & Horst, H. A. (2009). *Hanging out, messing around, and geeking out: Kids living and learning with new media*. MIT Press.
- Izquierdo-Yusta, A., Olarte-Pascual, C., & Reinares-Lara, E. (2015). Attitudes toward mobile advertising among users versus non-users of the mobile Internet. *Telematics & Informatics*, 32(2), 355–366. <http://doi.org/10.1016/j.tele.2014.10.001>
- James, C. (2014). *Disconnected: Youth, new media, and the ethics gap*. Cambridge, MA and London: The MIT Press.
- James, C., Davis, K., Flares, A., Francis, J. M., Pettingill, L., Rundle, M., & Gardner, H. (2009). *Young people, ethics, and the new digital media: A synthesis from the GoodPlay Project*. Cambridge, MA and London: The MIT Press.
- Jensen, J. A., Walsh, P., Cobbs, J., & Turner, B. A. (2015). The effects of second screen use on sponsor brand awareness: A dual coding theory perspective. *Journal of Consumer Marketing*, 32(2), 71–84. <http://doi.org/10.1108/JCM-02-2014-0861>
- Jones, C. (2011). Students, the net generation, and digital natives: Accounting for educational change. In M. Thomas (Ed.), *Deconstructing digital natives: Young people, technologies, and the new literacies* (pp. 30–46). New York and London: Routledge.
- Jubien, P. (2013). A phenomenology of the podcast lecture. *Explorations in Media Ecology*, 11(1), 73–85. http://doi.org/10.1386/eme.11.1.73_1
- Kang, S., Lee, K. M., & De La Cerda, Y. (2015). U.S. television news about the smartphone: A framing analysis of issues, sources, and aspects. *Online Journal of Communication & Media Technologies*, 5(1), 174–196.
- Kato, F. (2014). Learning with mobile phones. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 236–244). New York and London: Routledge.
- Katz, J. E., & Lai, C.-H. (2014). Mobile locative media: The nexus of mobile phones and social media. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 53–62). New York and London: Routledge.

- Keogh, B. (2014). Paying attention to *Angry Birds*: Rearticulating hybrid worlds and embodied play through casual iPhone games. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 267–275). New York and London: Routledge.
- Kiddie, T. J. (2014). Text(ing) in context: The future of workplace communication in the United States. *Business & Professional Communication Quarterly*, 77, 65–88. <http://doi.org/10.1177/2329490613511493>
- Kim, C. K., Jun, M., Han, J., Kim, M., & Kim, J. Y. (2013). Antecedents and outcomes of attachment towards smartphone applications. *International Journal of Mobile Communications*, 11(4), 393–411. <http://doi.org/10.1504/IJMC.2013.055750>
- Kim, D., Chun, H., & Lee, H. (2012). *Factors contributing to smartphone adoption among college students*. Paper presented at the International Communication Association Conference, Phoenix, AZ.
- Kim, K. Y. (2014). Genealogy of mobile creativity: A media archaeological approach to literary practice in Japan. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 216–224). New York and London: Routledge.
- Kirchhoff, S. M. (2010). The U.S. newspaper industry in transition. *Journal of Current Issues in Media & Telecommunications*, 2(1), 27–51.
- Koskinen, I. (2012). How a university domesticated the iPhone. In L. Hjorth, J. Burgess, & I. Richardson (Eds.), *Studying mobile media: Cultural technologies, mobile communication, and the iPhone* (pp. 225–240). New York and London: Routledge.
- Kratzke, C., & Cox, C. (2012). Smartphone technology and apps: Rapidly changing health promotion. *International Electronic Journal of Health Education*, 15. Retrieved 14 November 2015 from <https://www.questia.com/library/journal/1G1-331687525/smartphone-technology-and-apps-rapidly-changing-health>
- Krontiris, I., Langheinrich, M., & Shilton, K. (2014). Trust and privacy in mobile experience sharing: Future challenges and avenues for research. *IEEE Communications Magazine*, 52(8), 50–55. <http://doi.org/10.1109/MCOM.2014.6871669>
- Kupiainen, R. (2011). Young people, mobile phones and creative media practices at school. *Barn*, (3-4), 151–167.
- Lasén, A. (2014). Mobile sentimental education: Attachment, recognition, and modulations of intimacy. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 396–405). New York and London: Routledge.
- Laskin, A. V., & Avena, J. (2015). Introduction of mobile media into formal classroom learning environments. *Journalism & Mass Communication Educator*, 70(3), 276–285. <http://doi.org/10.1177/1077695815601170>
- Lauricella, A. R., Cingel, D. P., Blackwell, C., Wartella, E., & Conway, A. (2014). The mobile generation: Youth and adolescent ownership and use of new media. *Communication Research Reports*, 31(4), 357–364. <http://doi.org/10.1080/08824096.2014.963221>
- Law, P. (2014). Political communication, the Internet, and mobile media: The case of *Passion Times* in Hong Kong. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 419–428). New York and London: Routledge.
- Lee, H., Park, N., & Hwang, Y. (2015). A new dimension of the digital divide: Exploring the relationship between broadband connection, smartphone use, and communication competence. *Telematics & Informatics*, 32(1), 45–56. <http://doi.org/10.1016/j.tele.2014.02.001>
- Lee, P. (2015). Is the smartphone TV's friend or foe? *Television*, 52(7), 24–26.
- Lee, S. Y. (2014). Examining the factors that influence early adopters' smartphone adoption: The case of college students. *Telematics & Informatics*, 31(2), 308–318. <http://doi.org/10.1016/j.tele.2013.06.001>
- Lee, S., & Lee, S. (2014). Early diffusion of smartphones in OECD and BRICS countries: An examination of the effects of platform competition and indirect network effects. *Telematics & Informatics*, 31(3), 345–355. <http://doi.org/10.1016/j.tele.2013.12.002>
- Leek, S., & Christodoulides, G. (2009). Next-generation mobile marketing: How young consumers react to Bluetooth-enabled advertising. *Journal of Advertising Research*, 49(1), 44–53.
- Lemish, D. (2013a). Feminist theory approaches to the study of children and media. In D. Lemish (Ed.), *The Routledge international handbook of children, adolescents, and media* (pp. 68–74). London and New York: Routledge.
- Lemish, D. (Ed.). (2013b). *The Routledge international handbook of children, adolescents, and media*. London and New York: Routledge.
- Lemos, A. (2011). Pervasive computer games and processes of spatialization: Informational territories and mobile technologies. *Canadian Journal of Communication*, 36(2), 277–294.
- Lenhart, A. (2009). Teens and sexting. A Pew Internet & American life Project Report. Retrieved 4 November 2015 from <http://www.pewinternet.org/2009/12/15/teens-and-sexting/>.
- Lesitaokana, W. (2014). Young people and mobile phone technology in Botswana. In *Handbook of children and youth studies* (pp. 1–11). Singapore: Springer Science+Business Media. Retrieved 14 November 2015 from http://link.springer.com/article/10.1007%2F978-981-4451-96-3_30-1/lookinside/000.png
- Li, Q., Cross, D., & Smith, P. K. (Eds.). (2012). *Cyberbullying in the global playground: Research*

- from international perspectives. Malden, MA and Oxford: Wiley-Blackwell.
- Li, Q., Smith, P. K., & Cross, D. (2012). Research into cyberbullying: Context. In Q. Li, D. Cross, & P. K. Smith (Eds.), *Cyberbullying in the global playground: Research from international perspectives* (pp. 3–12). Malden, MA and Oxford: Wiley-Blackwell.
- Liebholt, M. (2010). Digital immersion: Augmenting places with stories and information. *Nieman Reports*, 64(2), 66–68.
- Lim, S. S. (2014). Women, “double work,” and mobile media: The more things change, the more they stay the same. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 356–364). New York and London: Routledge.
- Lin, J., Li, Z., Xie, G., Sun, Y., Salamatian, K., & Wang, W. (2013). Mobile video popularity distributions and the potential of peer-assisted video delivery. *IEEE Communications Magazine*, 51(11), 120–126. <http://doi.org/10.1109/MCOM.2013.6658663>
- Lin, W.-Y., Zhang, X., Jung, J.-Y., & Kim, Y.-C. (2013). From the wired to wireless generation? Investigating teens’ Internet use through the mobile phone. *Telecommunications Policy*, 37(8), 651–661. <http://doi.org/10.1016/j.telpol.2012.09.008>
- Lindsay, B. R. (2010). Social media and disasters: Current uses, future options, and policy considerations. *Journal of Current Issues in Media & Telecommunications*, 2(4), 287–297.
- Ling, R. (2014). Theorizing mobile communication in the intimate sphere. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 32–41). New York and London: Routledge.
- Ling, R., & Bertel, T. (2013). Mobile communication culture among children and adolescents. In D. Lemish (Ed.), *The Routledge international handbook of children, adolescents, and media* (pp. 127–133). London and New York: Routledge.
- Ling, R., Bertel, T. F., & Sundsøy, P. R. (2012). The socio-demographics of texting: An analysis of traffic data. *New Media & Society*, 14(2), 281–298. <http://doi.org/10.1177/1461444811412711>
- Ling, R., & Donner, J. (2009). *Mobile communication*. Cambridge, UK and Malden, MA: Polity.
- Link, M. W., Murphy, J., Schober, M. F., Buskirk, T. D., Childs, J. H., & Tesfaye, C. L. (2014). Mobile technologies for conducting, augmenting, and potentially replacing surveys. *Public Opinion Quarterly*, 78(4), 779–787. <http://doi.org/10.1093/poq/nfu054>
- Lobato, R., & Thomas, J. (2014). Informal mobile economies. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 114–122). New York and London: Routledge.
- Lu, H.-P., & Su, P. Y.-J. (2009). Factors affecting purchase intention on mobile shopping web sites. *Internet Research*, 19(4), 442–458. <http://doi.org/10.1108/10662240910981399>
- Madianou, M. (2014). Smartphones as polymedia. *Journal of Computer-Mediated Communication*, 19(3), 667–680. <http://doi.org/10.1111/jcc4.12069>
- Mariscal, J., Gamboa, L., & Rentería Marín, C. (2014). The democratization of Internet access through mobile adoption in Latin America. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 104–113). New York and London: Routledge.
- Martínez-Cerdá, J.-F., & Torrent-Sellens, J. (2014). Alfabetización mediática y co-innovación en la microempresa: Primeras evidencias para España [Media literacy and co-innovation in micro-firms: First evidences in Spain]. *El Profesional de la Información*, 23(3), 288–299. <http://doi.org/10.3145/epi.2014.may.09>
- Mazzarella, S. R. (2013). Media and gender identities: Learning and performing femininity and masculinity. In D. Lemish (Ed.), *The Routledge international handbook of children, adolescents, and media* (pp. 279–286). London and New York: Routledge.
- McEwen, R. (2014). Mediating sociality: The use of iPod Touch™ devices in the classrooms of students with autism in Canada. *Information, Communication & Society*, 17(10), 1264–1279. <http://doi.org/10.1080/1369118X.2014.920041>
- Melinescu, N. (2013). New media and the changes in the communication paradigm. *PCTS Proceedings (Professional Communication & Translation Studies)*, 6(1/2), 223–223.
- Mesch, G. (2013). Internet media and peer sociability. In D. Lemish (Ed.), *The Routledge international handbook of children, adolescents, and media* (pp. 287–294). London and New York: Routledge.
- Middleton, A. (Ed). (2015). *Smart learning: Teaching and learning with smartphones and tablets*. Sheffield, UK: Media-Enhanced Learning Special Interest Group and Sheffield Hallam University.
- Middleton, C. (2014). Mobile media and next generation broadband: Policy and markets. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 94–103). New York and London: Routledge.
- Mihailidis, P. (2014). A tethered generation: Exploring the role of mobile phones in the daily life of young people. *Mobile Media & Communication*, 2(1), 58–72. <http://doi.org/10.1177/2050157913505558>
- Miller, K. H., Ziegler, C., Greenberg, R., Patel, P. D., & Carter, M. B. (2012). Why physicians should share pda/smartphone findings with their patients: A brief report. *Journal of Health Communication*, 17, 54–61. <http://doi.org/10.1080/10810730.2011.649102>
- Mills, J., & Green, B. (2013). Popular screen culture and digital communication technology in literacy learning:

- Toward a new pedagogy of cosmopolitanism. *Journal of Popular Film & Television*, 41(2), 109–116. <http://doi.org/10.1080/01956051.2013.787355>
- Mohan, S., Agarwal, N., & Dutta, A. (2012). Social networks meet mobile networks. *IEEE Communications Magazine*, 50(6), 72–73. <http://doi.org/10.1109/MCOM.2012.6211488>
- Molyneux, L. (2014). Reporters' smartphone use improves quality of work. *Newspaper Research Journal*, 35(4), 83–97.
- Monterde, A., & Postill, J. (2014). Mobile ensembles: The uses of mobile phones for social protest by Spain's indignados. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 429–438). New York and London: Routledge.
- Mzezewa, T. (2015). Is it possible to get millennials to watch TV news? *Columbia Journalism Review*, 54(1), 34–35.
- Nathanson, A. I. (2013). Media and the family context. In D. Lemish (Ed.), *The Routledge international handbook of children, adolescents, and media* (pp. 299–306). London and New York: Routledge.
- Neto, I., & Lopes, F. (2014). The mobile media platforms and the PSM challenges in the media convergence era. *Estudos Em Comunicação*, (16), 33–49.
- Nicholson, J. A. (2014). Mobilities and race. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 346–355). New York and London: Routledge.
- Nickerson, R. C., Isaac, H., & Mak, B. (2008). A multinational study of attitudes about mobile phone use in social settings. *International Journal of Mobile Communications*, 6(5), 541–563. <http://doi.org/10.1504/IJMC.2008.019321>
- Nørgård, R. T. (2014). Talking tacitly. *NORDICOM Review*, 35, 219–235.
- Novita Christin, G., Zainuddin Tamin, O., Santoso, I., & Miharja, M. (2014). Always connected: A first insight into the influence of smartphone adoption on the activity-travel behaviour of mobile professionals in Indonesia. *Social Technologies/Socialines Technologies*, 4(1), 76–92. <http://doi.org/10.13165/ST-14-4-1-06>
- N.Y. (2014). New media meets old. *Editor & Publisher*, 147(7), 11.
- Nyre, L., Bjørnstad, S., Tessem, B., & Øie, K. V. (2012). Locative journalism: Designing a location-dependent news medium for smartphones. *Convergence: The Journal of Research into New Media Technologies*, 18(3), 297–314. <http://doi.org/10.1177/1354856512441151>
- Odine, M. (2013). Arab women use media to address inequality. *Journal of International Communication*, 19(2), 167–181. <http://doi.org/10.1080/13216597.2013.833537>
- Ofcom. (2014). Children and parents: Media use and attitudes report. Retrieved 15 October 2015 from <http://stakeholders.ofcom.org.uk/market-data-research/other/research-publications/childrens/children-parents-oct-14/>
- Okazaki, S. (2008). Determinant factors of mobile-based word-of-mouth campaign referral among Japanese adolescents. *Psychology & Marketing*, 25(8), 714–731.
- Okazaki, S. (2009). The tactical use of mobile marketing: How adolescents' social networking can best shape brand extensions. *Journal of Advertising Research*, 49(1), 12–26.
- Osit, M. (2008). *Generation text: Raising well-adjusted kids in an age of instant everything*. New York, Atlanta, Brussels, Chicago, Mexico City, San Francisco, Shanghai, Tokyo, Toronto, Washington, DC: AMA-COM American Management Association.
- Palmer, D. (2012). iPhone photography: Mediating visions of social space. In L. Hjorth, J. Burgess, & I. Richardson (Eds.), *Studying mobile media: Cultural technologies, mobile communication, and the iPhone* (pp. 85–97). New York and London: Routledge.
- Palmer, D. (2014). Mobile media photography. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 245–255). New York and London: Routledge.
- Park, C., Jun, J. K., & Lee, T. M. (2015). Do mobile shoppers feel smart in the smartphone age? *International Journal of Mobile Communications*, 13(2), 157–171. <http://doi.org/10.1504/IJMC.2015.067961>
- Pavlik, J. V. (2001). *Journalism and new media*. New York: Columbia University Press.
- Paxhia, S. (2011). The challenges of higher education digital publishing. *Publishing Research Quarterly*, 27(4), 321–326. <http://doi.org/10.1007/s12109-011-9245-0>
- Pettegrew, L. S., & Day, C. (2015). Smart phones and mediated relationships: The changing face of relational communication. *Review of Communication*, 15(2), 122–139. <http://doi.org/10.1080/15358593.2015.1044018>
- Prensky, M. (2011). Digital wisdom and homo sapiens digital. In M. Thomas (Ed.), *Deconstructing digital natives: Young people, technologies, and the new literacies* (pp. 15–29). New York and London: Routledge.
- Ranieri, M., & Bruni, I. (2013). Mobile storytelling and informal education in a suburban area: A qualitative study on the potential of digital narratives for young second-generation immigrants. *Learning, Media & Technology*, 38(2), 217–235. <http://doi.org/10.1080/17439884.2013.724073>
- Reading, A. (2009). Memobilia: The mobile phone and the emergence of wearable memories. In J. Garde-Hansen, A. Hoskins, & A. Reading (Eds.), *Save as . . . digital*

- memories (pp. 81–95). New York: Palgrave-Macmillan.
- Ribak, R.. (2013). The mobile phone in the geographies of young people. In D. Lemish (Ed.), *The Routledge international handbook of children, adolescents, and media* (pp. 307–314). London and New York: Routledge.
- Richardson, I. (2011). The hybrid ontology of mobile gaming. *Convergence: The Journal of Research into New Media Technologies*, 17(4), 419–430. <http://doi.org/10.1177/1354856511414797>
- Richardson, I., & Hjorth, L. (2014). Mobile games: From *Tetris* to *Foursquare*. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 256–266). New York and London: Routledge.
- Roux, B., & Falgoust, M. (2013). Information ethics in the context of smart devices. *Ethics & Information Technology*, 15(3), 183–194. <http://doi.org/10.1007/s10676-013-9320-7>
- Ruiz-Del-Olmo, F.-J., & Belmonte-Jiménez, A.-M. (2014). Los jóvenes como usuarios de aplicaciones de marca en dispositivos móviles [Young people as users of branded applications on mobile devices]. *Comunicar*, 22(43), 73–81. <http://doi.org/10.3916/C43-2014-07>
- Sabatier, L., & Fizzle, E. (2011). Managing the progressive publishing company during market and technology transitions. *Publishing Research Quarterly*, 27(3), 220–229. <http://doi.org/10.1007/s12109-011-9223-6>
- Sarwar, M., & Soomro, T. R. (2013). Impact of smartphones on society. *European Journal of Scientific Research*, 98(2), 216–226. Retrieved 14 November 2015 from <http://www.europeanjournalofscientificresearch.com>
- Schäfer, M. (2011). Science journalism and fact checking. *JCOM: Journal of Science Communication*, 10(4), 1–5.
- Schleser, M. (2014). A decade of mobile moving-image practice. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 157–170). New York and London: Routledge.
- Shaikh, A. A., & Karjaluoto, H. (2015). Mobile banking adoption: A literature review. *Telematics & Informatics*, 32(1), 129–142. <http://doi.org/10.1016/j.tele.2014.05.003>
- Sheller, M. (2014). Mobile art: Out of your pocket. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 197–205). New York and London: Routledge.
- Shim, H., You, K. H., Lee, J. K., & Go, E. (2015). Why do people access news with mobile devices? Exploring the role of suitability perception and motives on mobile news use. *Telematics & Informatics*, 32(1), 108–117. <http://doi.org/10.1016/j.tele.2014.05.002>
- Shin, D.-H., & Kim, T.-Y. (2011). *U-learning adoption among college students: Implications for smartphones as u-learning device*. Paper presented at the International Communication Association Conference, Boston, MA.
- Shuter, R., & Chattopadhyay, S. (2014). A cross-national study of cultural values and contextual norms of mobile phone activity. *Journal of Multicultural Discourses*, 9(1), 61–70. <http://doi.org/10.1080/17447143.2013.859262>
- Silva, C. (2014). Back to the future of news: looking at locative media principles in the pre-news era. *#ISOJ Journal*, 4(1), 23–42.
- Simpson, O. (2013). Student retention in distance education: are we failing our students? *Open Learning*, 28(2), 105–119. <http://doi.org/10.1080/02680513.2013.847363>
- Smart, N. J. (2012). A survey of smartphone and tablet computer use by colorectal surgeons in the UK and Continental Europe. *Colorectal Disease*, 14 (9), e535–e538.
- Spry, D. (2010). Angels and devils: Youth mobile media politics, fear, hope, and policy in Japan and Australia. In S. Hemelryk Donald, T. Dirndorfer Anderson, & D. Spry (Eds.), *Youth, society, and mobile media in Asia* (pp. 15–30). London and New York: Routledge.
- Squire, K., & Dikkers, S. (2012). Amplifications of learning: Use of mobile media devices among youth. *Convergence: The Journal of Research into New Media Technologies*, 18(4), 445–464. <http://doi.org/10.1177/1354856511429646>
- Stald, G. (2007). Mobile monitoring: Questions of trust, risk, and democracy in young Danes’ uses of mobile phones. In P. Dahlgren (Ed.), *Young citizens and new media: Learning for democratic participation* (pp. 205–225). New York and London: Routledge.
- Stald, G. (2008). Mobile identity: Youth, identity, and mobile communication media. In *Youth, identity, and digital media*. Cambridge, MA: MIT Press.
- Stephens, K. K. (2012). Multiple conversations during organizational meetings: Development of the multicommuting scale. *Management Communication Quarterly*, 26(2), 195–223. <http://doi.org/10.1177/0893318911431802>
- Styliaras, G., & Koukopoulos, D. (2012). Educational scenarios with smartphones in cultural heritage sites and environments. *Journal of Educational Multimedia & Hypermedia*, 21(3), 285–315.
- Suh, Y., Lee, H., & Park, Y. (2012). Analysis and visualisation of structure of smartphone application services using text mining and the set-covering algorithm: A case of app store. *International Journal of Mobile Communications*, 10(1), 1–20.
- Sutanto, J., Palme, E., Tan, C.-H., & Phang, C. W. (2013). Addressing the personalization-privacy paradox: An empirical assessment from a field experiment on smartphone users. *MIS Quarterly*, 37(4), 1141–A5.

- Takahashi, T. (2014). Always on and connected: Young people and their mobile social media use in Japan, the US, and the UK. Retrieved November 13, 2015 from <http://blogs.law.harvard.edu/toshietakahashi/files/2014/12/Always-on-and-Connected-Japan-Foundation2014-.pdf>
- Talbert, J. (2015). Smart learning: Teaching and learning with smartphones and tablets. *Forensic*, 100(2), 45–48.
- Thomas, M. (Ed.). (2011a). *Deconstructing digital natives: Young people, technology, and the new literacies*. New York and London: Routledge.
- Thomas, M. (2011b). Technology, education, and the discourse of the digital native: Between evangelists and dissenters. In M. Thomas (Ed.), *Deconstructing digital natives: Young people, technologies, and the new literacies* (pp. 1–14). New York and London: Routledge.
- Thompson, B. C., Mazer, J. P., & Flood Grady, E. (2015). The changing nature of parent–teacher communication: Mode selection in the smartphone era. *Communication Education*, 64(2), 187–207. <http://doi.org/10.1080/03634523.2015.1014382>
- Tian, X., & Martin, B. (2011). Impacting forces on ebook business models development. *Publishing Research Quarterly*, 27(3), 230–246. <http://doi.org/10.1007/s12109-011-9229-0>
- Tojib, D., Tsarenko, Y., & Sembada, A. Y. (2015). The facilitating role of smartphones in increasing use of value-added mobile services. *New Media & Society*, 17(8), 1220–1240. <http://doi.org/10.1177/1461444814522951>
- Tomiuc, A. (2014). Navigating culture: Enhancing visitor museum experience through mobile technologies, from smartphone to Google Glass. *Journal of Media Research*, 7(3), 33–46.
- Toutain, F., Bouabdallah, A., Zemek, R., & Daloz, C. (2011). Interpersonal context-aware communication services. *IEEE Communications Magazine*, 49(1), 68–74. <http://doi.org/10.1109/MCOM.2011.5681018>
- Turkle, S. (2012). *Alone together: Why we expect more from technology and less from each other*. New York: Basic Books.
- Turner, J. S., & Croucher, S. M. (2014). An examination of the relationships among United States college students' media use habits, need for cognition, and grade point average. *Learning, Media & Technology*, 39(2), 199–214. <http://doi.org/10.1080/17439884.2013.777349>
- Twentyman, J. (2013). Deploying smartphones, tablets, and apps for a new employee communication era. *Strategic Communication Management*, 17(1), 28–31.
- Vahlberg, V. (2010). *Fitting into their lives: A survey of three studies about youth media usage*. Arlington, VA: Newspaper Association of America Foundation. Retrieved 25 October 2015 from https://www.americapressinstitute.org/wp-content/uploads/2013/09/NIE_Fitting_into_their_lives.pdf
- Verhoeff, N. (2012). A logic of layers: Indexicality of iPhone navigation in augmented reality. In L. Hjorth, J. Burgess, & I. Richardson (Eds.), *Studying mobile media: Cultural technologies, mobile communication, and the iPhone* (pp. 118–132). New York and London: Routledge.
- Verkasalo, H., López-Nicolás, C., Molina-Castillo, F. J., & Bouwman, H. (2010). Analysis of users and non-users of smartphone applications. *Telematics & Informatics*, 27(3), 242–255. <http://doi.org/10.1016/j.tele.2009.11.001>
- Vickery, J. R. (2015). “I don’t have anything to hide, but?...”: The challenges and negotiations of social and mobile media privacy for non-dominant youth. *Information, Communication & Society*, 18(3), 281–294. <http://doi.org/10.1080/1369118X.2014.989251>
- Vincent, J., & Fortunati, L. (2014). The emotional identity of the mobile phone. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 313–319). New York and London: Routledge.
- Walton, M. (2014). Pavement Internet: Mobile media economies and ecologies in South Africa. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 450–461). New York and London: Routledge.
- Waltorp, K. (2013). Public/private negotiations in the media uses of young Muslim women in Copenhagen: Gendered social control and the technology-enabled moral laboratories of a multicultural city. *International Communication Gazette*, 75(5/6), 555–572. <http://doi.org/10.1177/1748048513491912>
- Waltorp, K. (2015). Keeping cool, staying virtuous. *MedieKultur: Journal of Media & Communication Research*, 31(58), 49–67.
- Wang, C.-H., Lin, C.-W., & Chuah, Y.-L. (2012). TV journalists' competence model: An exploratory study. *Annual International Conference on Journalism & Mass Communications*, 168–174. http://doi.org/10.5176/2301-3729_JMComm12.53
- Wankel, L. A., & Blessinger, P. (Eds.). (2013). *Increasing student engagement and retention using mobile applications: Smartphones, Skype, and texting technologies* (Created in partnership with the Higher Education Teaching and Learning Association). Bingley: Emerald.
- Washington, M. C., Okoro, E. A., & Cardon, P. W. (2014). Perceptions of civility for mobile phone use in formal and informal meetings. *Business & Professional Communication Quarterly*, 52–64. <http://doi.org/10.1177/1080569913501862>
- Watkins, J., Hjorth, L., & Koskinen, I. (2012). Wising up: Revising mobile media in an age of smartphones. *Continuum: Journal of Media & Cultural Studies*,

- 26(5), 665–668. <http://doi.org/10.1080/10304312.2012.706456>
- Watkins, J., Kitner, K. R., & Mehta, D. (2012). Mobile and smartphone use in urban and rural India. *Continuum: Journal of Media & Cultural Studies*, 26(5), 685–697. <http://doi.org/10.1080/10304312.2012.706458>
- Watkins, S. C. (2009). *The young and the digital: What the migration to social-network sites, games, and anytime, anywhere media means for our future*. Boston: Beacon Press.
- Watson, C., McCarthy, J., & Rowley, J. (2013). Consumer attitudes towards mobile marketing in the smart phone era. *International Journal of Information Management*, 33(5), 840–849. <http://doi.org/10.1016/j.ijinfomgt.2013.06.004>
- Weber, S., & Mitchell, C. (2008). Imaging, keyboarding, and posting identities: Young people and new media technologies. In D. Buckingham (Ed.), *Youth, identity, and digital media* (pp. 25–48). Cambridge, MA and London: The MIT Press.
- Wei, R., Lo, V., Xu, X., Chen, Y.-N. K., & Zhang, G. (2014). Predicting mobile news use among college students: The role of press freedom in four Asian cities. *New Media & Society*, 16(4), 637–654. <http://doi.org/10.1177/1461444813487963>
- Weiss, A. S. (2013). Exploring news apps and location-based services on the smartphone. *Journalism & Mass Communication Quarterly*, 90(3), 435–456. <http://doi.org/10.1177/1077699013493788>
- West, J., & Mace, M. (2010). Browsing as the killer app: Explaining the rapid success of Apple's iPhone. *Telecommunications Policy*, 34(5/6), 270–286. <http://doi.org/10.1016/j.telpol.2009.12.002>
- Westlund, O. (2014). The production and consumption of news in an age of mobile media. In G. Goggin & L. Hjorth (Eds.), *The Routledge companion to mobile media* (pp. 135–145). New York and London: Routledge.
- Xu, C., Li, S., Zhang, Y., Miluzzo, E., & Chen, Y. (2014). Crowdsensing the speaker count in the wild: Implications and applications. *IEEE Communications Magazine*, 52(10), 92–99. <http://doi.org/10.1109/MCOM.2014.6917408>
- Yamamoto, M., Kushin, M. J., & Dalisay, F. (2015). Social media and mobiles as political mobilization forces for young adults: Examining the moderating role of online political expression in political participation. *New Media & Society*, 17(6), 880–898. <http://doi.org/10.1177/1461444813518390>
- Yoon, K. (2008). Mobile phones, young people, and South Korean culture. *Education about ASIA*, 13(3), 52–55.
- Yusuf Dauda, S., & Lee, J. (2015). Technology adoption: A conjoint analysis of consumers' preference on future online banking services. *Information Systems*, 53, 1–15. <http://doi.org/10.1016/j.is.2015.04.006>
- Zheng, Y. (2015). *Encyclopedia of mobile phone behavior*. Hershey, PA: IGI Global.
- Zimmerman, J. (2015, November 10). Schools can't stop kids from sexting. More technology can. Retrieved November 15, 2015 from http://www.nytimes.com/2015/11/10/opinion/schools-cant-stop-kids-from-sexting-more-technology-can.html?_r=0

Added Reading

- Agar, J. (2003). *Constant touch: A global history of the mobile phone*. Cambridge: Icon Books.
- Campbell, S. W., & Park, Y. (2008). Social implications of mobile telephony: The rise of the personal communication society. *Sociology Compass* 2(2), 371–387. Retrieved 12 November 2015 from http://ersilia.net/ET2050_library/docs/tech/society/social_implications_mobile_technology.pdf
- Cannes, L. (2013). I'm so over oversharing: On making our digital lives more real. accessed 2 October 2013. <http://allthingsd.com/20130802/im-so-overoversharing-on-making-our-digital-lives-more-real/>
- Caron, A. H., & Caronia, L. (2007). *Moving cultures: Mobile communication in everyday life*. London and Ithaca: McGill-Queen's University Press.
- Castells, M., Fernandez-Ardevol, M., Qiu, J. L., & Sey, A. (2007). *Mobile communication and society: A global perspective*. Cambridge, MA: MIT Press.
- Cohen, A., Lemish, D., & Schejter, A. M. (Eds.). (2007). *The wonder phone in the land of miracles: Mobile telephony in Israel*. Cresskill, NJ: Hampton Press.
- Common Sense Media. (2011). *Zero to eight: Children's media use in America*. San Francisco, CA: Common Sense Media.
- Common Sense Media. (2013). *Zero to eight: Children's media use in America 2013*. San Francisco, CA: Common Sense Media.
- Fortunati, L., & Vincent, J. (2009). *Electronic emotion: The mediation of emotion via information and communication technologies*. Oxford: Peter Lang.
- Frith, J. (2013). Turning life into a game: Foursquare, gamification, and personal mobility. *Mobile Media & Communication*, 1(2), 248-262.
- Garcia-Montes, J., Caballero-Munoz, D., & Perez-Alvarez, M. (2006). Changes in the self resulting from the use of mobile phones. *Media, Culture, and Society*, 28(1), 67-82.
- Gazzard, A. (2011). Location, location, location: Collecting space and place in mobile media. *Convergence: The International Journal of Research into New Media Technologies*, 17(4), 405-417.
- Geser, H. (2006). Are girls (even) more addicted? Some gender patterns of cell phone usage. *Sociology in*

- Switzerland: *Sociology of the Mobile Phone*. Zurich: Online Publications. Retrieved 12 November 2015 from http://socio.ch/mobile/t_geser3.pdf.
- Gillespie, T. (2010). The politics of platforms. *New Media & Society*, 12(3), 347-364.
- Glutz, P., & Bertschi, S. (Eds.). (2005). *Thumb culture: Social trends and mobile phone use*. Bielefeld: Transcript Verlag.
- Goggin, G. (2006). *Cell phone culture: Mobile technology in everyday life*. London: Routledge.
- Goggin, G. (Ed.). (2008). *Mobile phone culture*. London and New York: Routledge.
- Goggin, G. (2011). *Global mobile media*. London and New York: Routledge.
- Goggin, G., & Hjorth, L. (Eds.). (2009). *Mobile technologies: From telecommunications to media*. (Routledge Research in Cultural and Media Studies). New York and London: Routledge.
- Gordon, E., & de Souza e Silva, A. (2011). *NetLocality: Why location matters in a networked world*. Boston: Blackwell-Wiley.
- Green, N. (2003). Outwardly mobile: Young people and mobile technologies. In J. E. Katz (Ed.), *Machines that become us: The social context of personal communication technology* (pp. 201-218). New Brunswick: Transaction Publishers.
- Green, N., & Haddon, L. (2009). *Mobile communications*. Oxford: Berg.
- Groening, S. (2010). From “a box in the theater of the world” to “the world as your living room”: Cellular phones, television and mobile privatization. *New Media and Society*, 12(5), 331-347.
- Gye, L. (2007). The impact of mobile camera phones on personal photographic practices. *Continuum*, 21(2), 279-88.
- Haddon, L. (2008). Young people’s diverse use of multimedia mobile phones. Paper presented at the Conference of the International Communication Association, Montreal, Canada, May 2008. Retrieved 16 October 2015 from <http://www.lse.ac.uk/media@lse/whoswho/academicstaff/lesliehaddon/icapanelhaddon.pdf>
- Halverson, E., & Halverson, R. (2008). Fantasy baseball: The case for competitive freedom. *Games & Culture*, 3(3-4), 286-308.
- Hand, M. (2012). *Ubiquitous photography* (Digital Media and Society Series). Cambridge, UK: Polity Press.
- Hanson, J. (2007). *24/7: How cell phones and the Internet change the way we live, work and play*. Westport: Praeger.
- Helles, R. (2013). Mobile communication and intermediality. *Mobile Media & Communication*, 1(1), 14-19.
- Hijazi-Omari, H., & Ribak, R. (2008). Playing with fire: On the domestication of the mobile phone among Palestinian teenage girls in Israel. *Information, Communication & Society*, 11(2), 149-66. doi:10.1080/13691180801934099
- Hinton, S., & Hjorth, L. (2013). *Understanding social media* (Understanding Contemporary Culture Series). London: Sage Publications.
- Hjorth, L. (2008). The game of being mobile: On media history of gaming and mobile technologies in Asia-Pacific. *Convergence. The International Journal of Research into New Media Technologies*, 13(4), 369-381.
- Hjorth, L. (2009). *Mobile media in the Asia-Pacific: Gender and the art of being mobile*. London and New York: Routledge.
- Hjorth, L. (2010a). *Games and gaming: An introduction to new media*. London: Berg.
- Hjorth, L. (2010b). The politics of being mobile: A case study of a different model for conceptualizing mobility, gaming, and play. In A. de Souza e Silva & D. Sutko (Eds.), *Digital cityscapes* (pp. 83-99). New York: Peter Lang.
- Hjorth, L. (2011). It’s complicated: Mobile intimacy and creativity in an age of social media and affective technology. *Communication, Politics, and Culture*, 44(1), 45-56.
- Hjorth, L. (2012a). iPersonal: A case study of the politics of the personal. In L. Hjorth, J. Burgess, & I. Richardson (Eds.), *Studying mobile media: Cultural technologies, mobile communication, and the iPhone* (pp. 190-212). New York and London: Routledge.
- Hjorth, L. (2012b). Locating the online: Creativity and user created content in Seoul, South Korea. *Media International Australia*, 141, 187-199.
- Hjorth, L. (2012c). The novelty of being mobile: A case study of mobile novels and the politics of the personal. In U. Ekman (Ed.), *Throughout: Art and culture emerging with ubiquitous computing* (pp. 205-221). Cambridge, MA: MIT Press.
- Hjorth, L. (2013a). Locating the visual: A case study of gendered location-based services and camera phone practices in Seoul, South Korea. *Television & New Media* (June). doi:10.15274/76413483841
- Hjorth, L. (2013b). The place of the emplaced mobile: A case study into gendered locative media practices. *Mobile Media & Communication Journal*, 1(1), 110-115.
- Hjorth, L., & Arnold, M. (2011). The rights and rites of passage: A case study of emerging technocultures and mobility in Shanghai. In D. Y. Jin (Ed.), *Global media convergence and cultural transformation: Emerging social patterns and characteristics* (pp. 139-151). Hershey, PA: Global ICI.
- Hjorth, L., & Arnold, M. (2013). *Online@AsiaPacific: Mobile, social, and locative media in the Asia-Pacific*. New York: Routledge.
- Hjorth, L., & Chan, D. (Eds.). (2009). *Gaming cultures and place in Asia-Pacific*. London: Routledge.

- Hjorth, L., & Gu, K. (2012). The place of emplaced visualities: A case study of smartphone visuality and location-based social media in Shanghai, China. *Continuum: Journal of Media and Cultural Studies*, 26(5), 699–713.
- Hjorth, L., & Richardson, I. (2011). Playing the waiting game: Complicating notions of (tele) presence and gendered distraction in casual mobile gaming. In H. Greif, L. Hjorth, A. Lasen, & C. Lobet-Maris (Eds.), *Cultures of participation, media practices, politics and literacy* (pp. 111–126). Berlin: Peter Lang.
- Hjorth, L., & Urn, S. S. (2012). Mobile intimacy in an age of affective mobile media. *Feminist Media Studies*, 12(4), 477–484.
- Hjorth, L., Wilken, R., & Gu, K. (2012). Ambient intimacy: A case study of the iPhone/presence, and location-based social networking in Shanghai, China. In L. Hjorth, J. Burgess, & I. Richardson (Eds.), *Studying mobile media: Cultural technologies, mobile communication, and the iPhone* (pp. 43–62). London and New York: Routledge.
- Ibrahim, Y. (2007). The technological gaze: Event construction and the mobile body. *M/C Journal*. Retrieved 12 November 2015 from <http://journal.media-culture.org.au/0703/03-ibrahim.php>.
- iResearch. (2013). 2012-2013 China smart device gamer behaviour report. Retrieved 4 November 2015 from <http://www.iresearchchina.com/reports/5122.html>
- iResearch. (2015). 2015 China Smart Device Users Report. Retrieved 4 November 2015 from <http://www.iresearchchina.com/reports/6674.html>
- Ito, M., Okabe, D., & Matsuda, M. (2005). *Personal, portable, pedestrian: Mobile phones in Japanese life*. Cambridge, MA: MIT Press.
- Katz, J. E. (2007). *Machines that become us: The social context of personal communication technology*. New Brunswick, NJ: Transaction.
- Katz, J. (Ed.). (2009). *Handbook of mobile communication studies*. Cambridge, MA: MIT Press.
- Katz, J., & Aakhus, M. (Eds.). (2002). *Perpetual contact: Mobile communication, private talk, public performance*. Cambridge: Cambridge University Press.
- Lenhart, A. (2012). *Teens, smartphones, & texting*. Washington, DC: Pew Internet & American Life Project.
- Lenhart, A., Ling, R., Campbell, S., & Purcell, K. (2010). *Teens and mobile phones*. Washington, DC: Pew Internet & Life Project.
- Lenhart, A., Purcell, K., Smith, A., & Zickuhr, K. (2010). *Social media and mobile Internet use among teens and young adults*. Washington, DC: Pew Internet & American Life Project.
- Ling, R. (2007). Children, youth, and mobile communication. *Journal of Children and Media*, 1(1), 60-67.
- Ling, R. (2008). *New tech, new ties: How mobile communication is reshaping social cohesion*. Cambridge, MA: MIT Press.
- Ling, R. (2009). Mobile communication and teen emancipation. In G. Goggin & L. Hjorth (Eds.), *Mobile technologies: From telecommunications to media* (pp. 50–61). New York: Routledge.
- Ling, R. (2012). *Taken for grantedness*. Cambridge, MA: MIT Press.
- Ling, R., & Pedersen, P. (Eds.). (2005). *Mobile communication: Re-negotiation of the social sphere*. London: Springer-Verlag.
- Livingstone, S., & Haddon, L. (2009). *EU kids online: Final report 2009*. London: EU Kids Online Network.
- Livingstone, S., Haddon, L., Görzig, A., & Ólafsson, K. (2011). *Risks and safety on the Internet: The perspective of European children*. The London School of Economics and Political Science.
- Madden, M., Lenhart, A., Cortesi, S., Gasser, U., Duggan, M., Smith, A., & Beaton, M. (2013). *Teens, social media, and privacy*. Washington, DC: Pew Internet & American Life Project.
- Madell, D. E., & Muncer, S. J. (2007). Control over social interactions: An important reason for young people's use of the Internet and mobile phones for communication? *CyberPsychology and Behavior*, 10(1), 137-140.
- Miller, D., & Horst, H. (2005). *Cell phone*. Oxford and New York: Berg.
- Miyata, K., Boase, J., & Wellman, B. (2008). The social effects of keitai and personal computer e-mail in Japan. In J. Katz (Ed.), *Handbook of mobile communication studies* (pp. 209–222). Cambridge, MA: MIT Press
- Palfrey, J. (2008). *Child safety & online technologies: Final report of the Internet safety technical task force to the multi-state working group on social networking of state attorneys general of the United States*. Cambridge, MA: Berkman Center for Internet & Society at Harvard University. Retrieved 4 November 2015 from https://cyber.law.harvard.edu/publications/2009/ISTTF_Final_Report
- Plester, B., Wood, C., & Bell, V. (2008). Txt msg n school literacy: Does texting and knowledge of text abbreviations adversely affect children's literacy attainment? *Literacy*, 42(3), 137–144.
- Plester, B., Wood, C., & Joshi, P. (2009). Exploring the relationship between children's knowledge of text message abbreviations and school literacy outcomes. *British Journal of Developmental Psychology*, 27(1), 145–161. doi:10.1348=026151008X320507.

- Reading, A. (2007). The global and the mobile: Camera phone memories in an age of terror. *Globalizations*, 6(1), 61–76. Retrieved 12 November 2015 from <http://www.tandfonline.com/doi/abs/10.1080/14747730802692435#.VkU6J7erS70>
- Reading, A. (2008). The mobile family gallery: Gender, memory, and the cameraphone. *Trames: Journal of the Humanities and Social Sciences*, 12(3), 353–389.
- Rideout, V. J., Foehr, U. G., & Roberts, D. F. (2010). *Generation M²: Media in the lives of 8- to 18-year-olds*. A Kaiser Family Foundation Study. Retrieved November 13, 2015 from <http://files.eric.ed.gov/fulltext/ED527859.pdf>.
- Rideout, V., & Hamel, R. (2006). *The media family: Electronic media in the lives of infants, toddlers, preschoolers, and their parents*. Menlo Park, California: Henry J. Kaiser Family Foundation.
- Rubinstein, D., & Sluis, K. (2008). A life more photographic: Mapping the networked image. *Photographies*, 1(1), 9–28. Retrieved 12 November 2015 from <http://www.tandfonline.com/doi/abs/10.1080/17540760701785842>
- Schulz, I. (2012). Visual mobile phone content and developmental challenges. In C. Martin & T. Pape (Eds.), *Images in mobile communication* (pp. 41–55). Wiesbaden: VS Verlag für Sozialwissenschaften.
- Smith, P. K., & Slonje, R. (2010). Cyberbullying—The nature and extent of a new kind of bullying, in and out of school. In S. R. Jimerson, S. M. Swearer, & D. L. Espelage (Eds.), *Handbook of bullying in schools: An international perspective* (pp. 249–262). New York: Routledge.
- Strayer, D. L., Drews, F. A., & Crouch, D. J. (2006). A comparison of the cell phone driver and the drunk driver. *Human Factors*, 48(2), 381–92.
- Vaage, O. F. (2010). *Mediabruks undersøkelse, 2009*. Oslo: Statistics Norway.
- Vaage, O. F. (2010). *Norsk mediebarometer 2010*. Oslo: Statistisk sentralbyrå [Statistics Norway]. Retrieved November 15, 2015 from http://www.ssb.no/a/publikasjoner/pdf/sa121/sa_121.pdf
- van Dijk, J. (2007). *Mediated memories in the digital age*. Palo Alto: Stanford University Press.
- Völlink, T., Dehue, F., & McGuckin, C. (Eds.). (2015). *Cyberbullying: From theory to intervention*. New York and London: Routledge.
- Xiaolu, Z. (2010). Charging children with child pornography: Using the legal system to handle the problem of “sexting.” *Computer Law & Security Review*, 26(3), 251–59. doi:10.1016/j.clsr.2010.03.005

Book Reviews

Gil de Zúñiga, Homero (Ed.). *New Technologies and Civic Engagement: New Agendas in Communication*. New York: Routledge, 2015. Pp. vii, 240. ISBN 978-0-415-71048-0 (cloth) \$135; 978-0-415-71049-7 (paper) \$52.95; 978-0-315-75092-7 (e-book) \$37.14.

How are digital media influencing political communication and practices, indeed our very ideas of what constitute citizenship and the public today? What are the implications for enduring concerns about the viability of democracy, including citizens’ capacities to care and learn about politics, unequal participation, and youth civic engagement? How should scholars research these developments and to what ends? Contributors to *New Technologies and Civic Engagement* help to shed light on each of these questions, albeit based almost exclusively on data from the U.S. context.

Essays in the first part of the book contribute to debates over how young people’s online political practices spur us to reconceptualize citizenship today. This focus is warranted because youth are especially active experimenters with digital media, today’s political socialization helps shape the future of democratic participation, and worries about youth engagement are often a proxy for concerns about all generations’ involvement in politics.

Thanks to the Internet, youth are now armed with unprecedented amounts of political information and new ways to participate. Yet many young people do not regularly follow political news and lack traditional ties to organizations (such as parties, unions, ethnic organizations, and churches) that once ushered neophytes into political action. Most political candidates devote little or no attention to targeting youth supporters. As a result, the millennial or DotNet generation is often seen as rejecting norms of citizenship based on duty to others and the state in favor of a more individualized vision, in which politics is a smorgasbord of opportunities to express oneself on issues that concern one most. Some observers worry that young citizens’ sporadic voting records and attention to public affairs, reluctance to join parties and political organizations, and engagement in “click here to save the world” online activism, leaves them ill-equipped to influence government. Others celebrate the new and creative ways in which youth are expanding the field of political action and using new media to dissolve barriers between private and public

expression, by coming together online to protest and boycott products based on their environmental or social justice attributes and to circulate political messages and engage in issue campaigns on social media.

Drawing on the literature and her own interviews with American youth, Kjerstin Thorson wisely avoids the Manichean nature of the debate (youth versus elders, new versus old politics, good versus bad citizenship), instead concluding that these shifts increasingly pluralize participation in both promising and troubling ways. “The hallmark of contemporary youth civic cultures,” she observes, “is ‘*it’s up to you*,’ an ethos of self-reliance and perceived autonomy and tolerance for multiple ways of living that offers extraordinary possibilities for self-made policy experts and civic innovators but provides little guidance to those for whom politics is at best tangential and at worst irrelevant to daily life” (p. 5). Thorson argues that news and civic education should be redesigned to cultivate political interest and efficacy in regard to a broad field of political actions, not just voting in national elections.

Much depends on how civic activity and media usage are defined and measured, which is underscored by Rosanne Scholl’s snapshot of 18–25 year old Americans in 2008. Her analysis of a nationally-representative survey finds that youth who spent more time consuming traditional news sources spent *fewer* hours on civic engagement—a finding that contradicts most prior research. The difference may be explained by the fact that Scholl’s index of civic engagement is fairly nonpolitical (three of the five measures were of participation in any school clubs, arts, and sports) and she did not ask about online news consumption or social media usage during an election year in which unusually large numbers of young voters followed President Obama’s campaign closely on the Internet and turned out at the polls. By 2008, traditional indicators were probably doomed to paint an incomplete and misleading picture of youth media usage and political engagement.

In her study of political socialization, Lucy Atkinson confirms that there is indeed a split between how new and old media influence youth political actions. Her surveys and interviews with American youth suggest that using traditional print and television news media (along with the influence of parents, schools, and churches) still predicts young people’s plans to adopt traditional forms of engagement, such as voting, volunteering, or donating to a party. Yet

following online news only boosts one’s likeliness to use political values to guide one’s purchasing decisions. Optimists about youth engagement often point to consumption as a significant arena in which youth are expanding traditional notions of political action. Unfortunately, Atkinson’s respondents tend to see their own consumer activism as apolitical or ineffective. The fact that these youth have yet to acknowledge a new civic norm attributed to them may not bode well for their ability to connect new and old forms of action into a coherent politics and see it as powerful. Atkinson also finds that parents continue to be the most potent socialization agents for all kinds of political engagement. This should temper views of youth as rampant individualists who shape their own politics in a social vacuum, and perhaps also direct reformers’ attention to boosting parents’ civic engagement as a way to influence youth.

Use of social networks has been a particular flash point for debates over whether youth engagement is increasing or shrinking, substantive or shallow. Using structural equation modeling on a large sample of Americans, Homero Gil de Zúñiga and Saif Shahin show that using social networks for news and information (but not for entertainment) helps to predict levels of social capital, which contributes to civic participation, and online and offline political participation. In addition, having a larger online network of discussion partners enhances civic participation more than having a larger offline network because social media allow youths to share and discuss political news with a broader range of people, including those outside one’s circle of family and friends. These effects of informational social networking are small but significant, even after taking into account other factors known to influence political activity—such as gender, education, efficacy, and exposure to all forms of news. Marko Skoric finds similar links between informational social media use and social capital in a representative sample of Singaporean youth. However, in Singapore, where politics has been more constrained by governing elites, social capital did not contribute directly to civic participation but was mediated by youths’ sense of efficacy. Taken together, these studies offer a useful antidote to simplistic generalizations about technology, reminding us that the political context in which citizens are socialized influences whether they choose to take advantage of the affordances of a new medium for political purposes.

Part 2 of the book turns to the theme of how digital communication may be helping to form new publics. Central themes include political polarization and extremism. Jennifer Brundige raises familiar concerns that on the Internet we may be less likely to consider information and views that challenge our political perspectives, and therefore to deliberate over issues. She theorizes that more selective exposure to news online and simplistic partisan campaign communications may reduce our cognitive complexity. However, while the other essays in this section acknowledge important changes in a world of network communications, the authors offer evidence that fears about the Internet as a cause of polarization may be misplaced.

Hernando Rojas theorizes that while mass mediated publics once represented the people as whole, or helped form publics around particular issues, social media allow for “egocentric publics” constructed around an individual’s interactions across multiple blogs, discussion forums, and social networking sites. These online personal networks provide individuals with an interpretive filter for information from the political system, such as official discourse and mass media news. Yet empirical studies suggest that interacting with one’s egocentric public decreases personal extremism, even if it increases one’s perception that others are polarized. Rojas attributes these seemingly paradoxical effects to the fact that we encounter greater diversity of viewpoints in online individualized publics than in our face-to-face personal networks (decreasing extremism) but we often find exemplars of the most extreme claims by political opponents on the Internet, which become the basis for inferring how others think (increasing perceived polarization).

Magdalena Wojcieszak adds more detail to the picture, based on data from three studies of Internet users in Colombia and the U.S. She finds that a narrow slice of political extremists emerge from interactions with their personal networks (on neo-Nazi sites, in this study) with even more radical opinions. People with weakly-held and moderate views can be swayed toward the dominant opinion in ideologically homogeneous online groups. But the views of the general population indeed become more moderate as they interact in their online publics.

Theories of polarization and extremism tend to think of us primarily as receivers of information online, based on the mass media model of passive audiences.

Raymond Pingree reminds us that the Internet’s interactivity should draw our attention more forcefully to effects that flow from our *sending* of political messages. The act of composing a message can complicate, reorganize, or coalesce our understanding of issues and ourselves. Publicly expressing our views can increase our commitment to what we have professed. Even anticipating future expression can shape how we attend to and process incoming messages. As Pingree notes, if we ignore these sender effects we are likely to underestimate the power of new forms of citizen expression online. One of his many helpful suggestions for future research is to study experimentally the effects of composing, releasing, and anticipating ideologically rigid and nuanced messages, or messages in which we have to give reasons for our views and those in which we do not. Each of these factors may help to explain how we may think more sophisticatedly, flexibly, or moderately in an interactive media environment.

The last part of the book turns to assessing organizational and economic structures. Chris Wells analyzes the repertoire of actions that American civic organizations solicit on their web sites and Facebook. Wells includes traditional membership groups often hailed as examples of the golden age of local and participatory democracy, the centralized managerial organizations that have arisen since the 1960s staffed by professional advocates and supported by citizen donations, and the new digital organizations that mainly encourage Internet activism, such as making and sharing media about social issues with one’s online network. While these organizations’ web sites indeed solicit actions that reflect their different models of activism, all now employ calls to digital activism on Facebook and other social media, giving up some control over messaging to sate contemporary citizens’ hunger for forming and expressing their political identities more autonomously and individually.

Americans’ relationship to the news media has also changed dramatically in the Internet era. Natalie Jomini Stroud, Ashley Muddiman, and Joshua Scacco summarize shifts in how journalism engages the public, using data from their study of local television news web sites’ use of interactive elements such as polls, comment sections, and links. In the authors’ framework, news sites embody tensions between appealing to users as a public that discusses matters of common concern or as a mass of individual consumers pursuing their separate interests, between presenting

the news as the product of a unique local station and a homogenized parent corporation, and between journalistic and citizen control over editorial content and prominence. Matt Hindman follows up by focusing on a particularly important feature of online news: the use of filtering algorithms that recommend or determine what content we see based on our prior behavior and preferences. Hindman concludes that these algorithms play a big role in attracting and retaining site visitors and advertising dollars, and that they demand significant investment to develop and improve. Thus, the age of algorithms is likely to confer competitive advantage on the large aggregators of news content and personal data that have become the main gateways to online news, such as Google and Yahoo! Our main concern about online news filters should be that they concentrate power over audiences' attention, not that recommendation engines segregate us into our own echo chambers, because the highest-performing algorithms include diverse topics.

Bruce Bimber concludes the book with an insightful, big picture view of three challenges for online political communication research. Now that Internet technologies are thoroughly interwoven with older media and each quotidian moment of our lives, it may be more appropriate to study the effects of the political messages with which we interact than to keep searching for independent effects of particular technologies, or of how frequently or intensively we use them. Perhaps the medium is no longer the message after all. Second, the rise of Big Data poses both an opportunity and a barrier to the field. The proliferation of behavioral and transactional records—such as social media expression, GPS location data, and purchasing records—offer new and often more reliable bases for understanding civic engagement than surveys and lab experiments. But social scientists will need to overcome their methodological conservatism, be more open to inductive approaches to building theory from the discovery of patterns, ask questions that extend beyond what the most easily-accessible data can answer, and find ways to overcome corporate control of much of the data and expertise in analyzing it. Third, scholars trained to assume that social behavior is linear will need to recognize that outcomes can be more complex and disproportionate to causes if we are to explain phenomena such as viral communication online.

While it draws evidence mainly from the U.S. context, *New Technologies and Civic Engagement*

offers a mix of theory and research that reflects multiple scholarly perspectives on major issues in the field, making it a useful addition to courses on political communication, media and youth, or cyberculture. References follow each chapter and there is an index.

—Chad Raphael
Santa Clara University

Hellmueller, Lea. *The Washington DC Media Corps in the 21st Century: The Source-Correspondent Relationship.* New York and London: Palgrave-Macmillan, 2014. Pp. 220. ISBN 9781137398598 (cloth) \$90.00. (Also available as e-book.)

Extending her academic interest in the journalism profession, the Swiss-born Lea Hellmueller researches source-reporter relations in Washington against the background of new trends in news reporting.

What is the nature of source-reporter relations? What is the influence of political sources in the U.S. capital upon reporters in their attempt to shape public opinion? In a sophisticated study, drawing upon Thomas Hanitzsch's work, the author questions the degree to which political sources in Washington today impact journalists. In the digital age reporters have more diverse sources available—which reduces their dependency on a news source. Globalization has had an impact on journalists and their sources. Yet to be true, even before the digital age journalists throughout the Western world, not just in single countries like the U.S., shared, and continue to share, many similar values like a belief in freedom of speech, and the right to know.

The transnational journalism culture, Hellmueller argues, may be measured at the cognitive level, or how perceptions of journalists influence news judgements of political sources; at the performative level, or the conditions under which news is produced in Washington; and at the evaluative level, or professional ideologies and role conceptions of journalists. Hellmueller herself admits, though, that a single journalism culture has not yet been created. Yet the author, in arguing her point about how globalization has affected transnational journalism, underestimates that individual cultures abound—partly because their members want them to. Therefore, while the 21st century may be characterized by globalization, and the global village may suggest all are networked, but within “the village” there remain many cultures and sub-cultures.

Notwithstanding the lively discussion (if at times marred by a heavy writing style), the study—an out-

growth of the author's doctorate drawing upon samples of political reporters from the U.S. media and foreign correspondents—could have benefitted from a more thorough breakdown of reporters from different media (television, radio, print, and website) which would have enriched the conclusions and shown up the differences in the relationships between different types of news medium and sources. Television is different from the print media. And, news websites, which given the up-to-date nature of the study, surely deserved greater priority in the discussion.

The choice of comparing political reporters of the U.S. media with foreign reporters is welcome since foreign reporters, as Hellmueller argues, bring their own culture from abroad, a fact that also influences their expectations. But the fact that political sources in Washington are geared towards local U.S. public opinion (with the exception of the State Department), and care much less if at all for foreign constituencies, makes the examination of foreign reporters less important as a central goal of the study.

The book's value is enhanced by the data on reporters' responses to the author's questionnaire. But sadly the reporter's tables themselves could have been enriched even more both by breaking down the findings on the U.S. reporters and the foreign correspondents, and between the findings of different types of journalists: print, radio, television, news agency, and website journalists.

—Yoel Cohen
Ariel University

Troup, Calvin L. (Ed.). *Augustine for the Philosophers: The Rhetor of Hippo, the Confessions, and the Continentals*. Waco, TX: Baylor University Press, 2014. Pp. xviii, 237. ISBN 978-1-4813-0087-2 (paper) \$49.95.

Calvin Troup's collection of nine essays about the influence of Augustine of Hippo attempts to trace Augustine in the work on contemporary continental philosophers, "part of a larger project dedicated to rehabilitating Augustine and bringing to light the pertinence of his work in rhetoric and philosophy of communication today" (p. ix). Each contributor examines a different thinker's wrestling with this classical Christian thinker in terms of their own 20th century work. The list includes Edmund Husserl, Martin Heidegger, Hannah Arendt, Hans-Georg Gadamer, Albert Camus, Paul Ricoeur, Jacques Ellul, and Jean-

François Lyotard. In his Preface to the volume, Troup argues that too often contemporary communication scholars relegate Augustine to the role of a "Christianizer" of classical rhetoric and ignore the wider role his work plays in situating many questions of contemporary philosophy. His overview chapter on Augustine's *Confessions* introduces the contemporary quality of his work for phenomenology, metaphysics, temporality, ethics, and hermeneutics.

Michael Hyde explores the ways that Heidegger encountered Augustine, not only as an orator but also as one who attempted an early phenomenology of Being. In some ways, Augustine's critique of the rhetoric of the Second Sophistic prepares the way for Heidegger's attention to language. Commenting on her dissertation on love and Saint Augustine, Ron Arnett focuses on Arendt's larger project on the social realm and human understanding, noting her influence on the modernist project of critique.

David Depew introduces Lyotard's posthumously published lectures on the *Confessions*. In his essay he points out "why it was not odd for a secular intellectual of the radical left to think well of Europe's most seminal conservative theologian, and what the significance of their encounter might be for students of communication processes" (p. 59). Ramsey Eric Ramsey explores the encounter between Camus and Augustine, beginning with Camus' lecture "The Unbeliever and Christians." John Arthos finds it unsurprising that Gadamer looks to Augustine, particularly in matters hermeneutic. He calls attention to a brief piece that Gadamer wrote, highlighting "the connection Augustine establishes between temporality and the soul" (pp. 93–94) and showing how Augustine connects theology to life experience.

Algis Mickūnas explores Augustine on time and Being and how for Husserl this "constitutes the basic problematics of transcendental subjectivity" (p. 107). Andreea Deciu Ritivoi also uses Augustine's meditation on time for her introduction to Ricoeur. Finally Troup and Clifford Christians connect Augustine and Ellul to both rhetoric and the philosophy of communication.

The book presents a masterful collection, a project well worth reading as an introduction to communication and philosophy and as an accessible starting place for continental philosophy. Graduate students and faculty will find it an outstanding collection. The volume contains extensive notes, bibliography, and indices.

—Paul A. Soukup, S.J.
Santa Clara University