How Mobile Technology is Changing Our Culture

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Abstract

Cell phones have become ubiquitous within our society, and many would now consider them a necessity rather than a convenience. This widespread use of cell phones and other mobile communication devices has brought with it an increasing acceptance of their use in virtually all social situations. It is no longer taboo to be caught with a ringing cell phone at a dinner with family and friends, at a sporting event, or even during a church service. Incoming calls are no longer seen as interruptions of the primary activity taking place, but are instead treated as equally important communications. Proximity is becoming inconsequential in terms of social interaction. This study seeks to determine how mobile technology has changed our culture and identifies the ways in which we now perceive socially acceptable communication.

Keywords: mobile technology, cell phones, culture, communication

1. INTRODUCTION

It is becoming increasingly acceptable to have and use cell phones and other mobile devices in social situations as more people are choosing to use cell phones than landline phones. The way we view communication and the appropriateness of certain types of communication behaviors is fundamentally changing. We have moved into an era where phone numbers refer to people instead of places. A cell phone is a constant companion that accompanies a person throughout their daily life and allows them the convenience of easy communication and access to information.

This cultural shift to an "always-on" world brings challenges along with the conveniences. Now, when a call is placed to someone on their cell phone, it is fully expected that the call will be answered because most people assume that a cell phone accompanies a person everywhere, regardless of their location. Even if someone is out of town or on vacation, the expectation remains the same because the cell phone is attached to the person rather than a specific place like a home or office.

There is no longer any assumption of private time – people are increasingly expected to be accessible at all times, and physical location is no longer of any importance or concern. Problems can arise as the boundaries between personal time and times when people are expected to be available continues to blur. We need to clearly understand the cultural shift that mobile devices are creating within our so-

ciety, and work to lessen some of the problems and challenges that it has caused.

This study seeks to determine how mobile technology has changed our culture and identify the ways in which we now perceive socially acceptable styles of communication. To this end, we explore the following research questions:

RQ1: Has it become socially acceptable to have and use mobile devices in all social situations?

RQ2: Has it become socially acceptable to be continually available via mobile devices?

The remaining sections of this paper will present the background and findings of the current study.

2. LITERATURE REVIEW

Mobile technologies have become a normal part of everyday life. More people now have cell phones than landline phones, both within the United States and internationally (Rosen, 2004). In fact, so many people have terminated their landline services in favor of having only cell phones that a term has emerged to describe this action – it's called "cutting the cord" (Townsend, 2000). The cell phone phenomenon is not limited to adults; in fact, it is not uncommon to see high school and middle school students with their own cell phones. When walking through a department store, or strolling down a crowded city street, or taking a ride on public transportation, it is completely common to hear others having cell phone conversations (Rosen, 2004).

A 2009 study conducted by Kakabadse, Kakabadse, Bailey & Myers (2009) surveyed 1, 277 students, ages 11-18, in regard to mobile phone calls and text messaging. A total of 267 surveys were returned. Ninety-five percent of students reported having access to a computer/laptop, mobile phone and /or the Internet. Approximately 17 percent of students identified that they spent at least three hours per day on a mobile phone. The majority of students indicated that they sent and/or received 20 text messages per day. Only five percent of students sent or received over 60 texts per day. Of the students that sent and received text messages 29 percent used text short cuts when completing school work. Students were asked a series of questions in regard to phone usage in the classroom. Over 50 percent reported that having a mobile phone in the classroom or a ringing cell phone in class did not distract them from their studies. Over 73 percent of students made no excuse to leave the classroom to answer their phone, while 22 percent apologized for causing inconvenience in the classroom. One-third of students indicated they would make a call from their mobile phone during class (Kakabadse et al., 2009).

In 2010, cell phones and other mobile devices are not simply used for telephone communications or even text messaging. Many mobile devices today can also access the Internet and run a variety of applications, making them the equivalent of a pocket-sized computer with wireless Internet access. People can now conduct banking, check sports scores and stocks, read news, watch YouTube videos, play games, find directions and maps, book travel plans, and lookup information at the touch of a button – from anywhere. The boundaries of activities and locations are becoming blurred. (Agre, 2001).

While cell phones can provide many conveniences, they have also begun to shift how people interact in public situations. People carry on entire conversations in public on their cell phones. Although it is up for debate as to why public cell phone conversations may seem more bothersome than normal conversations, it may be because the conversations of people standing nearby are two-sided conversations. When listeners can hear both sides of the discussion, the conversation is quantitatively greater (Rosen, 2004). When listeners hear only half of a cell phone conversation, it becomes more like "noise" and can be seen as a socially undesirable behavior. The cell phone user is sending a very clear message to others nearby that they are powerless to stop the "noise" – a very passive aggressive tactic (Rosen, 2004). Nevertheless, more and more people talk on their cell phones in public spaces.

Only five to ten years ago it would have been considered taboo to take phone calls during a lunch or dinner with friends. Now, if a cell phone rings, it is fully expected that the call or text will be answered. Sociologist Erving Goffman (1963) studied and mapped the many and varied types of human and social interaction in a time before cell phones. Now, his observations can be seen in a new light as they take on relevance in a world of mobile technology. Rosen (2004) states, "Although Goffman wrote in the era before cell phones, he might have judged their use as a 'subordinate activity,' a

way to pass the time such as reading or doodling that could and should be set aside when the dominant activity resumes" (Rosen, 2004, p. 38).

In various ways, the blurring of boundaries between activities and locations has resulted in a higher level of convenience for most people. But it has also presented a series of challenges that are just now beginning to surface. If a person always carries a mobile device, employers have instant access to them. The whole concept of a vacation is breaking down as employers know that an employee can be reached at the touch of a button for that one small question that is such high priority that it can't wait until they return to work (Agre, 2001). People can also now access email from their mobile devices, so urgent work emails can be dealt with during time off with no need to wait for a return to the office on Monday morning.

While work life may begin to intrude upon personal life, challenges also exist in the opposite direction. Employees who use social networking sites such as Twitter and Facebook to keep in touch with friends can find that these activities often extend themselves into the workday. Even if employers block these sites from use on company-owned computers, many employees can still access the sites via their cell phones. When a person's social network includes co-workers as well as friends and family, it can also become increasingly difficult to keep personal life separate from work life. There have been several reported cases where employees were fired because they either fraudulently "called off" work due to illness, yet posted their activities (clearly showing they were not ill but "playing hooky") or were fired for posting other employer-related comments (Matyszczyk, 2009; Sondergaard, 2009).

Other dangers related to cell phone use can affect those who talk or text on their cell phones while driving. A 2010 Driving While Distracted (DWD) survey conducted by Nationwide Insurance revealed that 38 percent of Americans say they have been hit or almost hit by a driver distracted by their cell phone. The study also showed that 1 in 4 Americans use downloaded applications such as GPS, sending and receiving email, searching the Internet and reading and posting messages to Facebook and Twitter (Carnegie Mellon University, 2009). A 2009 study conducted by Carnegie Mellon University revealed that 25 percent of police-reported crashes showed that DWD was a factor. Additionally, driving while using a cell phone reduces the amount of brain activity associated with driving by 37 percent (Nationwide Insurance, 2010). The findings of these studies indicate a person's need to stay connected even at the risk of hurting themselves or someone else.

Another danger is addiction to technology. There are many people who compulsively read their messages at all times of the day. The use of the BlackBerry brand of smart phones is commonly cited for its addictive nature (Locher, 2007; Zeman, 2007). BlackBerry phones have also been described as "electronic pets" because business people are often seen stroking the scroll wheel and giving the device constant attention as if it were a pet. Phones are decorated with various styles of carrying cases, covers, and holstering devices, further pushing the metaphor of a pet that is "dressed up" (Rosen, 2004). Individuals tend to develop very personal relationships with mobile phones, customizing them by entering commonly called numbers, music, and applications that they enjoy. Phones have become so addictive that they are being perceived more and more as an extension of the body, in a virtual sense rather than a physical one (Townsend, 2000). In fact, many people who normally carry cell phones at all times report that they feel "lost" or "naked" if they accidentally leave their cell phone behind (Alexander, Ward & Braun, 2007). Many of these people would make a separate trip to retrieve a phone just so that they can continue to feel safe and connected. A 2010 survey conducted by Bradley (2010) found that 8 of 10 business professionals would rather give up coffee than surrender their smart phone.

3. METHODOLOGY

This study examined the dependence on mobile technologies of undergraduate and graduate students ages 18 or older at a mid-Atlantic university. The researchers selected a quantitative methodology and designed a survey based on previous literature on technology dependency.

The survey questions focused on obtaining information from students on technology dependency. The survey questionnaire was a five-page, 39 question document which was comprised of four sections. The first section focused on participant demographics to include gender, age, and education. The second section addressed the students Internet and cell phone usage, including the use of text messag-

ing and social networking sites. The third section focused on the student's level of need for technology to complete their daily activities. Lastly, the fourth section sought information regarding the student's reliance on technology.

The study was a convenience sample surveying 88 undergraduate and graduate students. A 5% margin of error with a 95% confidence level was used. The researchers administered the survey to students from the School of Communications and Information Systems during scheduled class times in January 2010. Students were informed that taking the survey was strictly voluntary and would not impact their current or future relations with the university.

4. RESULTS

The objective of this study was to examine the cultural effects of mobile technology usage on university students and identify situations in which they perceive the use of mobile devices to be socially acceptable. Male and female genders were not represented in proportion in the participant sample. More than half of the research participants were male, 68% (58), while 34% (30) were female. Of the 88 students, 40 students were between the ages of 20-29, 29 were ages 30-39, 13 were ages 40-49 and 6 were ages 50 and over. The age breakdown is illustrated in Table 1.

Table 1

Age Groups of Sample

Age Group	# of Participants
20-29	40
30-39	29
40-49	13
50+	6

Research Question 1 sought to determine if it has become socially acceptable to have and use mobile devices in all social situations. Seventy-three percent (64) of survey participants said that they talk on their cell phone regularly in public places, while 27% (24) do not. In order to determine how socially acceptable students found the use of cell phones in varied social settings, the survey asked if they have ever answered their cell phone in a store, at a sporting event, while at lunch or dinner with friends, in class, in a meeting, in a movie theatre, in church, or at a funeral. The majority of students reported that they have answered their cell phones while in a store (99%), at a sporting event (86%), and while at lunch or dinner with friends (91%). Fewer students reported answering their cell phones in class (33%). These responses are summarized in Figure 1.

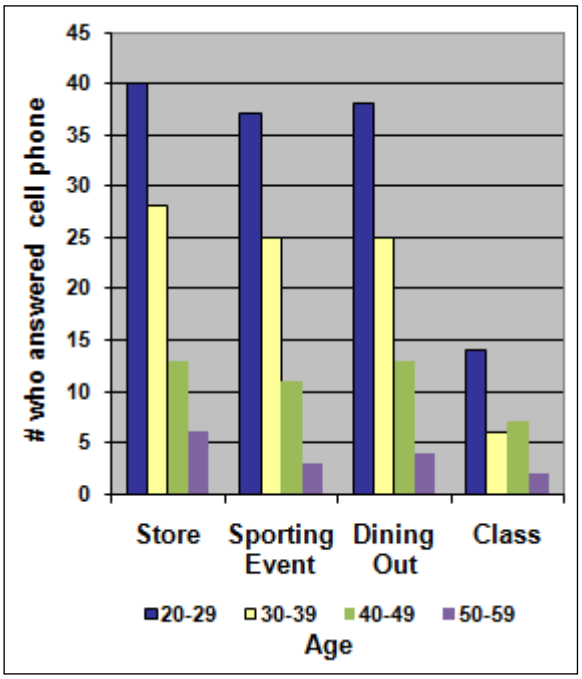

Figure 1 – Number of students who answered their cell phone in the first four social settings by age group.

A number of students reported answering their cell phones in a meeting (42%). The least number of students reported answering their cell phones in a movie theatre (18%), in church (11%), and at a funeral (11%). While the numbers in this last grouping are significantly lower, it is still important to point out that culture regarding mobile devices and interruptions has shifted to such an extent that 10-20% of students feel that it is alright to answer their cell phone in a movie theatre, church, or during a funeral. Figure 2 illustrates the number of students who answered their cell phone in each of these social settings.

The survey also addressed how socially acceptable it has become to use a cell phone while driving. Of the participants surveyed, 91% (80) said that they talk on their cell phone while driving, while 9% (8) did not. When asked if they texted while driving, there was an even split with 50% (44) saying that

they did text while driving and 50% saying that they did not.

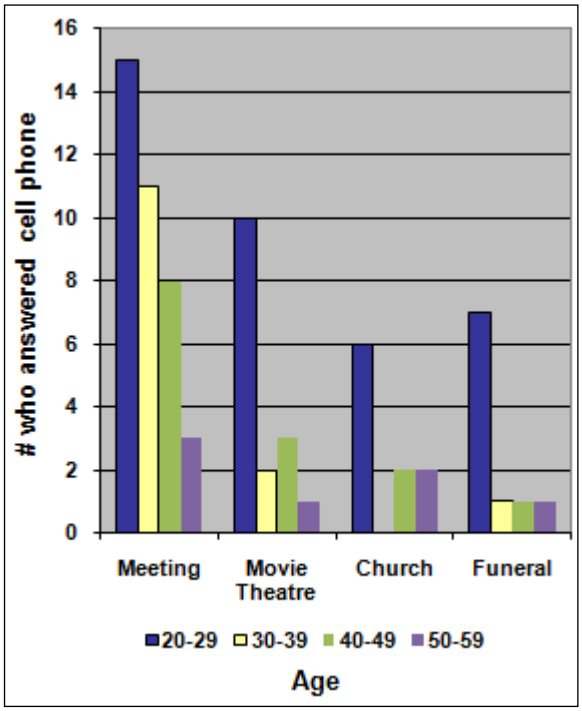

Figure 2 – Number of students who answered their cell phone in the second four social settings by age group.

Several articles and studies (Leighton, 2010; Madden & Lenhart, 2009; Nugent, 2008; Texting while driving, 2008; Thompson, 2006) have recently indicated that driving while text messaging may be more dangerous than driving while under the influence of alcohol. A recent study by the Pew Internet & American Life project (Madden & Lenhart, 2009) found that one in four (27%) American adults say they have texted while driving. The same study found that an almost identical proportion (26%) of driving age teens said that they have texted while driving, indicating that adults are just as bad as teenagers when it comes to this potentially dangerous activity (Madden & Lenhart, 2009; Muaddi, 2010). In our sample, no teenagers were included (the youngest age group was 20-29), but we did find that there is a statistically significant relationship between age and whether or not the student texts while driving (chi-square = 9.949, *df* = 3, p= .019). The younger students in our sample, ages 20-29, say that they text while driving much more than their older classmates. As age increased, the students were less likely to text while driving, as shown in Figure 3.

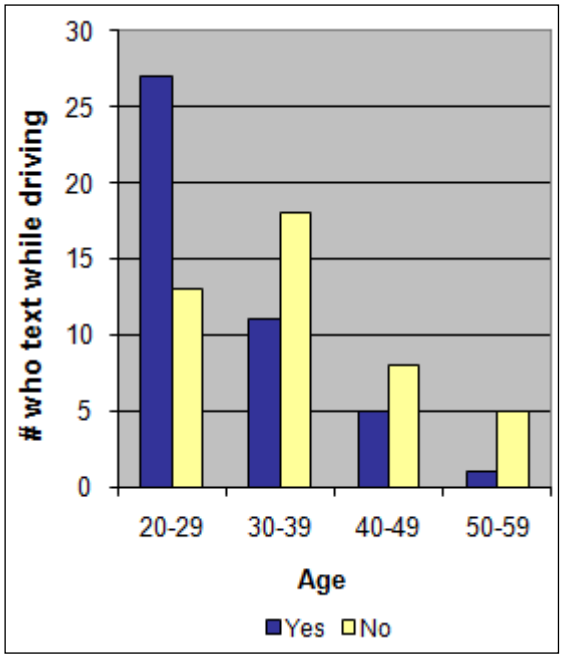

Figure 3 – Number of students who text while driving, by age.

Research Question 2 sought to determine if it has become socially acceptable to be continually available via mobile devices. In order to determine the extent to which they needed to stay connected in an "always-on" world, students were asked if they ever took a work related phone call while they were on vacation. A majority of 64 students, 73%, answered yes and 24 students, 27%, answered no. There is a statistically significant relationship between age and taking a work related phone call while on vacation (chi-square = 16.847, *df* = 2, p = .001). As a student's age increases, the likelihood of them taking a work related phone call while on vacation increases. Approximately 82% of students between the ages of 30 and 39 have taken work related calls while on vacation. Additionally, 100% of students over the age of 40 have taken work calls on vacation. Only 52% of younger students, between the ages of 20 and 29, have taken work related calls on vacation. Figure 4 shows students who have taken work related calls while on vacation, broken down by age.

In order to determine the extent to which students found it socially acceptable to answer a cell phone call during a face to face meeting, the survey asked students if they think it's

rude if someone takes a phone call while meeting or speaking with them. Sixty-three percent (55) of students said that they felt it was rude, while 37% (33) said that they did not feel it was rude.

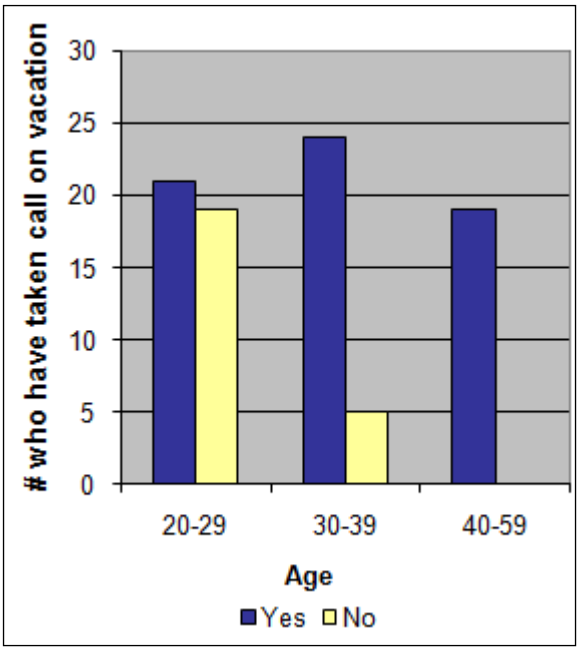

Figure 4 – Students who have taken work related calls on vacation by age.

The researchers found a statistically significant relationship between age and whether or not a student felt that it was rude to be interrupted by a phone call (chi square = 8.453, *df* = 3, p = .038). As a student's age increases, the likelihood that they felt being interrupted by a phone call was rude also increases. Approximately 47% of students between the ages of 20 and 29 felt it was rude, while 79% of students ages 30-39, 62% of students ages 40-49, and 83% of students ages 50-59 felt it was rude. Figure 5 shows the number of students who think interrupting cell phone calls are rude.

The extent to which students use mobile technologies on a daily basis is also an indicator of how socially acceptable they feel it is to have and use the devices. Survey questions addressed how the students receive the majority of their phone calls. Approximately 75% (66) of participants receive the majority of their phone calls by cell phone, contrasted with only 9% (8) who receive the majority of their calls via landline. Sixteen percent (14) of the participants stated that they receive the majority of their phone calls via text message.

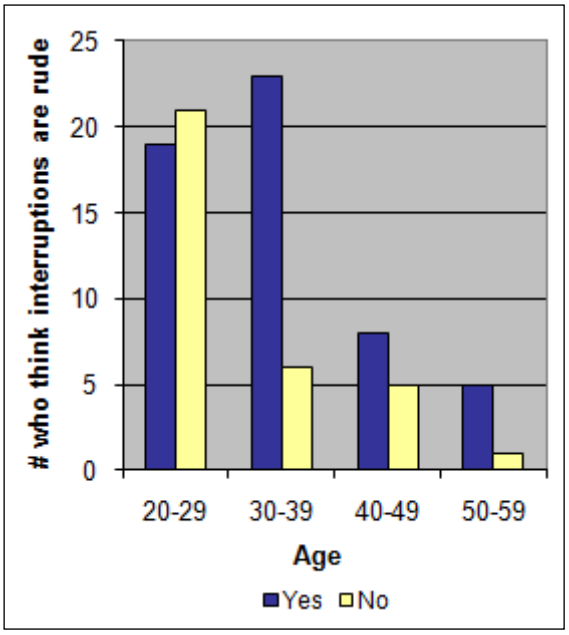

Figure 5 – Students who think taking cell phone calls during a face-to-face meeting is rude, by age.

The majority of students, 93% (82), indicated that they do use text messaging in general as a form of communication. Of the students who text, 53% (47) said that they prefer texting to making a phone call, while 47% (41) students said that they did not. Upon examining the age of the students along with their preference, we found that there is a strong, statistically significant relationship between age and texting preference (chi square = 23.409, *df* = 3, p = .000). In a recent study on the impact of text messaging on communication, Hemmer (2009) found that participants believed that text messaging is used to avoid face-to-face communication. In our sample, younger students clearly preferred texting to making a phone call, while older students preferred making a phone call and speaking to the other person rather than texting.

The survey asked participants how many text messages they send on average per day. On average, the 88 students surveyed send 22 text messages per day. There is a statistically significant relationship between age and number of texts sent (chi-square = 30.298, *df* = 18, p = .035). As a student's age progresses, the number of texts sent becomes fewer and fewer.

5. DISCUSSION

This study sought to determine whether it has become socially acceptable to have and use mobile devices in all social situations. After asking students whether they have taken a phone call in a variety of social settings, it's clear that standards for socially acceptable communication behaviors are changing. A majority of students reported that they had answered calls while in public places including stores, sporting events, and restaurants. This indicates that there is no longer any social expectation that these types of public or semi-public areas are off-limits for personal calls. A person's primary experience is no longer considered to be more important than their secondary experiences while connecting digitally to others at the same time.

While it may have been taboo to take a phone call at our grandparents' dinner tables, it seems clear that this is no longer the case in today's society. People are now expected to respect each individual's right to withdraw from the social group at any time through their cell phones or other mobile devices. Rosen (2004) postulates that sociologist Erving Goffman would have considered cell phone use a "subordinate activity" that should not be allowed to impose upon the social group as a whole or to overtake the primary activity – meaning that face-to-face communication should be respected and other calls should wait until later. We would argue that most people use their mobile devices to communicate in some way with other friends, family members, or colleagues who may not be sitting at the table. The action of communication itself, whether speaking on the phone, text messaging, commenting on Facebook, or updating your geo-location, is actually still a dominant activity. It is in fact, the same activity that is going on with the people sitting at the table. The difference lies in the fact that we now seem to perceive that proximity does not necessarily dictate our undivided attention. We now see our entire social network of people as equals, regardless of whether we are sitting face-to-face with them or miles away.

Respect for certain traditional social behaviors is also clearly in jeopardy. Eleven percent of students indicated that they had answered a cell phone call while at a funeral. While this is admittedly a small percentage, it's still large enough to have surprised us when we reviewed the results of the survey. It seems that while the majority of students did respect the tradition of a funeral enough to abstain from cell phone use, the fact that some students did not is indicative of the fact that mobile technology is continuing to push the boundaries of our acceptable social customs and behaviors.

This study also sought to determine whether it has become socially acceptable to be continually available via mobile devices at all times. Based on the statistics of cell phone usage versus landlines, it is apparent that we are shifting toward a mobile "always-on" world where everyone is digitally connected to their social group at all times.

It seems quite clear from our sample that younger students are more likely to prefer texting to phone calls or face to face communication, while older students are less likely to prefer texting and send fewer text messages on average per day than their younger classmates. However, older students may feel more obligation to the always-connected world, at least in terms of work, since more students over the age of 30 have taken at least one work-related call while they were on vacation. Only 52% of younger students, between the ages of 20 and 29, have taken work related calls on vacation. This lower percentage for younger students could be due to the fact that younger students have not yet entered the workforce or have not yet had the opportunity to be called upon to work during vacation in their early careers. This trend in general provides evidence that the boundaries between private life and work life are already blurring, and will likely continue to blur further in the future.

6. LIMITATIONS

The research reported in this study was limited to the School of Communications and Information Systems. The demographic characteristics revealed that male participants outnumbered female participants. This could have been attributed to conducting the survey using students from a school in which the majority of the students are male.

Additionally, the demographic characteristics revealed that the ages of participants included in the study were not equally distributed. There were a larger number of younger participants included, due to the nature of the sample. Conclusions cannot be generalized for the over 50 age group, which was represented by only 6 participants out of 88.

7. CONCLUSION

We are now living in a world where disruptive communication is acceptable. Interruptions are no longer frowned upon; they are simply expected as part of the normal social activity. Even places where cell phone interruptions have long been considered taboo, such as a movie theatre, church, or funeral, are starting to see more and more people challenging tradition and answering their cell phones.

Based on the findings of this study, we do think that a significant culture shift is occurring amidst our society. Our sample shows that younger individuals were both more likely to engage in cell phone usage in a variety of social settings and also were less likely to find this type of communication to be rude or disruptive.

While everyone can and should decide for themselves where their limitations and boundaries exist in relation to cell phone usage in public, it remains a serious concern as to how social conventions will continue to change in the workplace. Clear limitations and boundaries need to be set for workplace communication protocol, so that both employers and workers understand the expectations of one another regarding availability.

The idea that phone numbers now refer to people instead of places is an interesting one. It means that not only is physical location irrelevant, but it also provides us with some continuity of identity. If a person leaves one employer and moves to another, their cell phone number stays with them and their identity is not necessarily tied to that employer, office location, or industry. Instead of working in a network full of places and businesses, we are moving toward working in a network of connected people. In this regard, the cultural shift could provide many interesting changes and opportunities in the future.

Future studies should focus on a deeper understanding of the cultural shifts that are happening in relation to mobile technologies, and a broader range of survey participants across multiple disciplines and age groups should be utilized.

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Appendix

1. EXAMPLE SURVEY QUESTIONS

Do you prefer texting to making a phone call? (Yes/No)

Have you ever taken a work related call while you were on vacation? (Yes/No)

Have you ever answered your cell phone for each of the following? (Yes/No)

- In a store
- In class
- In a meeting
- At a funeral
- At a sporting event
- While at lunch or dinner with friends
- In church
- In a movie theatre

Do you think it's rude if someone takes a phone call while they are meeting or speaking with you? (Yes/No)