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Mobile Communication and the Public Sphere:
Linking Patterns of Use to Civic and Political Engagement

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Abstract

This study employed a uses and gratifications approach to investigate how certain patterns of mobile phone use are linked to civic and political involvement. Findings reveal that use of the technology for information exchange and recreation are positive predictors of participation in civic life, however associations are moderated by mobile communication competence. Most notably, individuals who report higher levels of comfort with mobile telephony and use it for information exchange tend to be more civically and politically engaged than those who report being less comfortable with the technology. These findings shed new light on the positive role of mobile communication in civil society, while highlighting competence as an emergent dimension of the so-called “second-level” digital divide, which has traditionally focused on computer skills.

The health of American democracy has become a topic of increasing concern in recent years. Much of this concern comes out of Putnam's (1995a, 2000) empirically based argument that Americans have become less politically active, less trusting of their government, and less involved in civic and community activities. Putnam attributes the steady decline of civic engagement in American society to the privatization of leisure time, noting that consumption of electronic media, especially television, contribute to this trend. There is some evidence supporting this hypothesis. For example, Norris (1996) and Shah, Kwak, and Holbert (2001) report that overall television viewing is negatively related to forms of political and civic involvement. However, these studies also reveal that certain forms of television viewing, such as watching news programs, reverse this trend with positive associations, demonstrating that the role of a given medium in civic life is dependent upon patterns in its use.

The ascent of new media, particularly the Internet, has given rise to a new wave of hopes and fears. Some warn that Internet use can displace face-to-face sociability (e.g., Nie & Erbring, 2000, 2002; Nie and Hillygus, 2002), while others celebrate new ways of connecting with others (e.g., Hampton & Wellman, 2001; Rheingold, 1993; Wellman, Boase, & Chen, 2002). The emergence of mobile communication technology warrants another step with research and theory on the intersections between new media and involvement in the public sphere. Recently, the adoption of wireless communication has surpassed that of the

Internet to become the fastest growing communication technology *ever* (Castells, Fernandez-Ardevol, Qiu, & Sey, 2007). Yet, researchers are only beginning to understand the role of the technology in civil society. This article offers a step forward by reporting on findings from a survey of U.S. adults that furthers our understanding of whether and how mobile communication is a resource for civic and political involvement. Rather than simply looking at how much one uses mobile communication technology, this study employs a uses and gratifications approach to examine the extent to which patterns of use play a role in civic life. The presumption here is that the role of mobile communication in these activities depend just as much on *how* one uses the medium as *how much*, if not more so.

Case studies show the potential for mobile communication to effect political change is unquestionable. One of the most renowned examples can be seen in the ousting of Filipino President Joseph Estrada. In January of 2001, Filipino citizens voiced outrage over the failure of government officials to pursue corruption charges during Estrada's impeachment trial. In the wake of civil unrest, over one million citizens gathered over a four-day period to protest the senate's decision not to consider potentially incriminating evidence of Estrada's corruption. Text messaging played a central role in coordinating the massive demonstrations, which culminated in the collapse of Estrada's cabinet and the military siding with protesters as they escorted him out of office (Castells et al., 2007; Rheingold, 2002). Other examples of mobile phone use for rapid and large-scale political

change have been reported in South Korea, Spain, (Castells et al., 2007), and elsewhere (Rheingold, 2002).

These events show that mobile telephony has emerged as a powerful tool in the formation of “smart mobs,” or “sudden epidemics of cooperation,” which can lead to rapid social and political change (Rheingold, 2002, p. 175). While this phenomenon has been illustrated through various case examples (Castells et al., 2007; Rheingold, 2002), little is known about use of the technology in more mundane, yet highly important, forms of civic life, such as involvement in community organizations and participation in common political activities. Although research in this area is notably thin, there is a small foundation upon which to build. In a study of several European countries and Israel, Ling, Yttri, Andersen, and Diduca (2003) found text messaging to be significantly and positively associated with membership in community and political organizations, while voice calling was not. In a similar study of the US, Campbell and Kwak (2007) found that for certain groups of mobile phone users, voice calling was significantly linked to civic and political engagement, while text messaging was not. It is noteworthy that these studies yielded disparate findings. It is also noteworthy that both studies focused on levels of use rather than purposes for use. In order to better understand how the technology serves as a tool for civic and political participation, the present study takes an alternative approach by adopting

a uses and gratifications framework to explore how motivations for using it are linked to participation in civic and political affairs.

Uses and gratifications is a theoretical orientation with a focus on why people use a given medium, as opposed to the “effects” of simple exposure to its content (Blumler & Katz, 1974). In other words, individuals use media to fulfill particular needs, and therefore outcomes of media use are shaped by the gratifications sought. Theorists of traditional media have proposed some primary categories for these gratifications, including need for information, social interaction, entertainment, and personal identity (McQuail, 1983, 1987; Zillman, 1985). Similar motives have been identified in research on the Internet with slight modifications to account for expanded utility, such as e-commerce (Norris & Jones, 1998; Shah, et al., 2001). With regard to mobile communication, scholars have applied uses and gratifications to suggest a number of categories for using the technology, such as instrumentality, sociability, recreation, and fashion (Leung & Wei, 2000; Wei 2008). For the purposes of this study, predictor variables of interest (i.e., gratifications/motives) include mobile phone use for (1) information exchange about news and public affairs, (2) sociability with family and peers, and (3) personal recreation. These categories for mobile phone use were arrived at through factor analysis, and previous research and theory provide grounds to anticipate that each may play a distinctive role in whether and how mobile communication is linked to civic and political involvement.

With regard to the first motive, studies show that use of both traditional and new media for surveillance of public affairs plays a positive role in civil society by providing individuals with information to reflect and deliberate on civic and political matters (Shah, Cho, Eveland, & Kwak, 2005). For example, Mcleod et al. (1996, McLeod Scheufele, & Moy, 1999) found that reading newspapers and watching local news are positively associated with community engagement. Television use for news and public affairs programming has been linked to civic and political involvement in other studies as well (Norris, 1996; Shah, 1998; Shah et al, 2001). Extending the research to an online context, Jennings and Zeitner (2003) found Internet access contributes to a number of civic engagement indicators, while other studies have linked informational uses of the Internet to participation in civic and political activities (Shah et al., 2001; Shah et al., 2005). These studies demonstrate how media consumption for surveillance and information exchange plays a positive role in connecting individuals to the public sphere of social life. We anticipate similar results for this use of mobile telephony, not only because it would be consistent with previous research, but also because the medium offers a heightened level of flexibility for information exchange. According to Shah et al. (2005), one reason why the Internet is an effective resource for civic engagement is its affordance of flexibility. They explain, “it allows users to access information on demand, receive news in a timely manner, learn about diverse viewpoints, customize content to suit their

interests, and go into greater depth about issues of importance” (p. 535). Like the PC-based Internet, mobile communication technology also allows for flexibility in terms of content and timeliness, even more so for the latter considering the technology can be used virtually anytime, anywhere. Furthermore, mobile communication provides another dimension of flexibility by allowing users to talk about issues with others, in addition to textual exchange and information retrieval. Drawing from the research and thinking in this area, we predict that increased mobile phone use for exchanging information about public affairs will yield positive associations to participation in civic life.

H1: Use of the mobile phone for information exchange will be a positive predictor of both civic engagement and political participation.

With regard to sociability, Coleman (1990) argued that civic and political engagement can be an unintended by-product of socializing with friends and family members. The idea here is that informal social connections foster trust in others and environments for political discussion and mobilization (Putnam, 1995a, 1995b). As Kwak, Shah, and Holbert (2004) explain, “the familiarity and equity that characterize informal associations likely encourage open interactions (Newton, 1997), thereby causing individuals to be receptive to information and opportunities that arise out of these forms of social connection” (p. 644). This

assertion was supported by their empirical findings that informal socializing is significantly and positively linked to civic engagement (Kwak et al., 2004).

On the other hand, there is also reason to question whether mobile phone use for connecting with friends and family members actually plays a constructive role in civic and political engagement because the former takes place within the private sphere of social life, while the latter are characteristically public sphere activities (Habermas, 1989). Although this may also true of other forms of sociability, there are nuances to mobile-mediated interpersonal communication that seem to reinforce its position in the private sphere, to the extent that it may even foster insularity among close relational ties for some users. Compared to other media, the mobile phone is a characteristically personal device used to maintain personal relationships through acts of relational expression and social coordination (Campbell & Park, 2008; Katz & Aakhus, 2002; Ling, 2004, 2008). In fact, for many individuals the primary use of the technology is to demonstrate and reinforce social network membership (Ling & Yttri, 1999, 2002, Ling, 2004, 2008). While the bonding potential of mobile communication may have a positive effect on the strength of network ties, there is also the concern that it can lead to “telecocoon” of like-minded individuals (Habuchi, 2005). Others have used phrases such as “virtual-walled communities” (Ling, 2004) and “intimate full-time communities” (Matsuda cited in Ito, 2004; Nakajima, Keiichi, & Yoshii, 1999) to characterize this phenomenon. Evidence of this telecocooning effect

raises new questions about whether the growing trend of “perpetual contact” (Katz & Aakhus, 2002) among intimate contacts hinders the technology’s use as resource for involvement in the public sphere. Given that previous research is not sufficient to state a directional hypothesis regarding the role of mobile sociability in public affairs participation, we have formulated the following research question:

RQ1: In what way is mobile phone use for sociability with informal ties associated with civic engagement and political participation?

As noted, entertainment is also a prominent gratification for using both old and new media (McQuail, 1983, 1987; Zillman, 1985; Leung & Wei, 2000). The ascent of mobile telephony has provided a new outlet for mediated entertainment. Individuals use the technology to pass time, play games, and satisfy other interests such as photography and popular culture (Castells et al., 2007; Wei, 2008). As is the case with sociability, mobile phone use for the pursuit of these personal interests may provide avenues for connecting with others, developing trust, and exposure to opinions and insights about civic or political matters. In this way, use of the technology for recreational purposes could conceivably play a positive role in civic and political involvement. However, it is also possible that recreational use of the technology is negatively linked to civic and political engagement if the motivation is simply to promote self interest rather than mutual benefit. By way of analogy, there is evidence that recreational use of the Internet is negatively associated with social capital indicators (Shah, et al., 2001). The following

research question is posed to help explore the links between mobile-mediated recreation and civic and political involvement:

RQ2: In what way is mobile phone use for recreation related to civic engagement and political participation?

In addition to motivations for use, the extent to which one is comfortable using mobile telephony may also have an impact on its role as a resource for engaging in civil society. Indeed, competence with new media, especially the Internet, has become a growing concern among scholars investigating the “digital divide” (Hargittai, 2002; van Dijk, 1999; van Dijk & Hacker, 2003). Presumably, this is an important consideration for mobile communication as well. To illustrate, those more comfortable with accessing the Web through their mobile handsets would seem better able to obtain and distribute information about civic and political matters. As Bunz (2004) explains, “most people’s daily environment (in developed countries) now demands a rather broad, far ranging IT skill set that has not been necessary in the past. Foremost among these fluencies are ‘information seeking’ and ‘information dissemination’ skills” (p. 481). In addition to information exchange, mobile communication competence may have an impact on other uses, such as sociability. In the context of computer-mediated communication (CMC), research shows that those with higher levels of comfort tend to benefit more from relational uses of the technology (Campbell & Neer,

2001; Hacker & Steiner, 2001; Tewksbury & Althaus, 2000). Furthermore, CMC efficacy can mitigate certain negative outcomes, such as feelings of loneliness and depression that have been associated with its use (LaRose, Eastin, & Gregg, 2001). Accordingly, we anticipate that comfort with mobile telephony may significantly interact with motives for using the technology.

RQ3: To what extent does competence with using mobile telephony interact with mobile phone use for (a) information exchange, (b) sociability, and (c) recreation to predict civic and political participation?

Method

Sample

The data for this study came from a national mail survey that was conducted immediately following the 2006 mid-term elections. The data collection was conducted by a research firm, *Synovate*. A massive number of people were contacted via mail and asked to express their willingness to participate in mail, telephone, or online surveys, and if so, to provide basic demographic information. A balanced sample was then drawn from among the more than 500,000 people who agreed to participate in the pre-recruited "mail panel."

In order to ensure representativeness, the sample for the current survey was drawn to reflect demographic distributions within the five Census divisions of household income, population density, panel member's age, gender, and region. This stratified quota sampling method was used to select approximately 2,000

mail survey respondents, from which 777 usable responses were received. This represents a response rate of 38.9 percent. This stratified quota sampling method differs markedly from more conventional probability sample procedures yet produces highly comparable data (Putnam, 2000; Putnam & Yonish, 1999).

Demographic characteristics of the current sample resemble the profiles of the national population figures reported in U.S. Census Bureau's 2006 American Community Survey (ACS), with respect to age (the median age in the 2006 ACS and the current study is 35-44 and 35, respectively), education attainment (the median education level in both data sets is some college), and household income (the median in the ACS and the current study is \$48,451 and \$50,000 – 59,999, respectively). However, there is a greater percentage of male respondents in the sample (56.2%) than in the ACS (49.2%).

Criterion Variables

Civic engagement. Five measures were used to tap respondents' involvement in volunteer and community activities: doing volunteer work, working on a community project, contributing money to a social group or cause, going to a community or neighborhood meeting, and working on behalf of a social group or cause. Respondents were asked to report how frequently in the past two months they participated in a respective activity. An eight-point scale, ranging from "none in the last two months" to "everyday," was used, and the responses were combined to form an index (Cronbach $\alpha = .81$).

Political participation. Respondents were asked about three types of involvement in traditional forms of political participation: attending a political meeting, rally, or speech; circulating a petition for a candidate or issue; and contacting a public official or a political party. Respondents reported the frequency of involvement in each type of participation in the past two months on an eight-point scale, ranging from “none in the last two months” to “everyday.” The responses were summed to form an additive index (Cronbach $\alpha = .85$).

Mobile phone use. A factor analysis (principal component, direct Oblimin) was conducted using 14 mobile phone use items (see Table 1). Each item was recorded on a 7-point scale, which measured how many days in a typical week respondents used their mobile phone for a respective activity. Among mobile phone users, there are notable differences in mobile activities. For example, among the most popular mobile activities were calling friends or family (93.4% of mobile phone users reported having used their phone for this use at least once a week), using text/instant messages to interact with friends or family (27.8%), and emailing friends or family (10.3%). However, some mobile activities were considerably less popular: only 2-4 % of the mobile phone users went online to express their opinions about issues, to read the opinions of others, or to share content about hobbies or personal interests at least once a week.

As shown in Table 1, the factor analysis uncovered a three-factor solution. Personal recreation consists of 6 items, each of which taps use of the mobile

phone for personal hobbies, interests, and entertainment (Cronbach $\alpha = .88$).

Sociability is comprised of a three item index that reflect use of the mobile for interacting with friends or family (Cronbach $\alpha = .62$). Finally, information exchange is a five-item index that measures use of the mobile phone for expressing, discussing, and exchanging opinions about issues (Cronbach $\alpha = .81$).

Perceived competence with mobile telephony. To measure the extent to which participants were comfortable with various features of their mobile phone, the respondents were asked to state how much they agreed with each of the three statements: “I find the special features on my mobile phone difficult to use,” “I think my mobile phone is easy to operate,” and “I am comfortable with the technical features of my mobile phone.” A six-point response scale, ranging from “definitely disagree” to “definitely agree,” was used. The responses to the first statement were reverse-coded, and an additive index was created (Cronbach $\alpha = .83$).

Communication variables. Three measures were employed to reflect respondents’ use of traditional news media and their interpersonal communication about political issues, because these communication variables may be related to both use of mobile phone and the criterion variables. Past research has shown that political talk tends to foster participation in public affairs (Kwak, Williams, Wang, & Lee, 2005), and it is plausible that those who are more involved in mass mediated and interpersonal communication tend to be more active in using their

mobile. For television news use, respondents were asked about how often they watched national nightly news and local news programs. A five-point scale, ranging from “never” to “regularly,” was used, and the responses were added as an index (inter-item correlation = .62). For newspaper use, a single item, which asked about respondent’ use of daily newspapers on the same 5-point scale was used. For political talk, three items that asked respondents to report how frequently during the past two months they had talked about politics with neighbors, friends, or family (Cronbach α = .84).

Control variables. As control variables, this study included age, gender, education, household income, and political interest, which have been found to influence the criterion variables (Jennings and Zeitner, 2003; Shah et al., 2001; Shah et al., 2005). To measure political interest, respondents were asked to state how much they agreed with the following statement, “I am interested in politics,” on a six-point scale, ranging from “definitely disagree” to “definitely agree.”

Interaction terms. In order to carry out analyses corresponding to RQ3, this study created interaction terms between different usage patterns of mobile telephony and competence with using mobile telephony. To reduce potential problems with multicollinearity between interaction terms and their components, all the component variables were standardized prior to the formation of the interaction terms (Cronbach, 1987; Eveland, 1997; Jaccard, Turrisi, & Wan, 1990).

Results

Table 2 shows findings concerning H1, RQ1, and RQ2, each of which concerns the relationship between use of the mobile phone and the criterion variables. A hierarchical regression was separately run for each of the two participation variables: civic engagement and political participation. As shown in Table 2, among the control variables, female and higher educated respondents were found to be more civically engaged, and those with greater interest in politics demonstrated greater participation in political events and opportunities. Among the communication variables, political talk was significantly related to both criterion variables. Overall, the control block accounted for 8.0% and 11.0% of the variance in civic engagement and political participation, respectively, and the communication block additionally explained 5.8% and 9.9%.

As a block, mobile phone use accounted for 5.1% and 12.2% of the variance in civic engagement and political participation after the contribution of the prior two blocks was taken into consideration. As expected (H1), use of mobile telephony for discussing and exchanging opinions on issues was significantly and positively related to both participation measures ($\beta = .15$ for civic engagement, and $\beta = .27$ for political participation). In fact, among the three dimensions of mobile phone use, information exchange was found to have the strongest relationship with the criterion variables. However, the findings show that there was little relationship between mobile sociability and participation

(RQ1). Use of the mobile phone for personal recreation (RQ2) was positively and significantly related to political participation ($\beta = .14$) and civic engagement ($\beta = .09$), the latter of which was only marginally significant, though.

While the analyses reported in Table 2 examined the direct relationship between mobile phone use and public affairs participation, those in Table 3 further investigated whether the consideration of perceived competence with mobile telephony would permit more nuanced understanding. After the control, of the three interaction terms, one variable, *information exchange X perceived competence*, was found to be significant in both regression equations. Interestingly, this particular dimension of mobile phone use is the one that demonstrated a significant relationship with both criterion variables (see Table 2), which thus indicates that the inclusion of perceived confidence as a moderator tended to further specify the relationships.

In order to understand the significant interactive relationships, predicated values of civic engagement and political participation were plotted in Figures 1 and 2, respectively. For both figures, four groups that had different degrees of mobile phone use for information exchange were identified with respect to how frequently they used a mobile phone to express, discuss, or exchange opinions about issues: none, once a week, three times a week, and seven times a week. Then, for each frequency group, participation scores for three levels of perceived

competence with mobile communication technologies (low, medium, and high) were computed and plotted.¹

Similar patterns of the relationships were shown in Figures 1 and 2. While the findings in Table 2 indicate a positive relationship between use of the mobile phone for information exchange and either participation variable, the results in the figures demonstrate that the positive relationship tended to become stronger as people became more familiar and felt competent with various technological features of their mobile phone. Also noteworthy is that the positive relationship between information exchange and participation was non-existent among those whose perceived competence with mobile technologies was low. In particular, the positive relationship between information exchange and civic engagement (Figure 1) appears to be manifested mostly among those who were highly at ease utilizing features of mobile telephony.

Discussion

The findings from this study help fill a gap in research on the links between mobile communication and participation in civic life. This gap can be understood using the concepts of bridging and bonding as a framework for considering different aspects of social capital. Bonding refers to connections with strong social ties, such as close friends and family members, while bridging refers to community attachment and connections with weak ties that tend to have less in common (Putnam, 2000). Both are important components of social capital,

although there is the danger that excessive bonding can “exacerbate and widen existing social cleavages, especially in pluralistic societies splintered by deep-rooted ethnonational, ethnoreligious, or racial conflict” (Norris, 2004, p. 32). To date, most of the research on mobile communication and social connectedness has emphasized the bonding potential of the technology, with results pointing to enhanced coordination among friends and family members (Ling & Yttri, 1999, 2002; Ling, 2004, 2008). In contrast, relatively little research has explored mobile communication as a potential resource for bridging through involvement in civic and political activities. This study suggests that bonding is not the only story to be told with regard to mobile communication and social capital. Results show that individuals who use the technology for information exchange and recreation tend to be more active citizens.

Before interpreting the significant findings, it is worth noting that no main effects were found for mobile-mediated sociability, suggesting this form of use may be a distinctively private sphere activity with limited implications for the public sphere. As mentioned previously, one theoretical explanation may be that heavy social contact via the mobile phone can lead to network insularity or telecocooning (Habuchi, 2005). However, if this is the case one might expect a significantly negative link between mobile-mediated sociability and engagement in civic life, which is not reflected in the findings. Another troubling aspect of the lack of significance here is that it is inconsistent with previous research showing

that face-to-face sociability is positively linked to civic engagement. The findings for sociability in this study raise questions about what, if anything, is distinctive about such use of the mobile phone. An explanation may lie in the extent to which mobile communication is used for logistical coordination when used to connect with social ties. Ling (2004; Ling & Yttri, 1999, 2002) explain that logistical coordination is a key use of the mobile phone among friends and, especially, adult family members managing domestic affairs. Ling (2004) provides the following interview excerpts to illustrate these types of exchanges: “Can you drive the youngest one to music lessons?” “Can you get him?” “Can you go to the store and buy milk?” (p. 71). In contrast to longer, open-ended conversations, mobile phone use for this type of coordination is less likely to lead to topics pertaining to civic and political matters. Items that comprise this factor assess frequency of contact with family and friends and not the nature of those interactions. Future research in this area will benefit from further contextualizing mobile-mediated social contact in order to distinguish between coordination and relational communication and to explore whether this distinction yields different patterns in the findings.

With regard to mobile phone use for personal recreation, the regression results are significant for political participation and approach significance for civic engagement, both in a positive direction. These findings are noteworthy in that they contrast with empirical findings for recreational use of the Internet (Shah et al., 2001) as well as arguments that recreational media use can erode

involvement in the public sphere, while communicative and informational uses contribute to it (Norris & Jones, 1998). As is the case with sociability, these main effects may indicate a distinction between mobile telephony and other media used for recreational purposes. One popular theoretical argument for why mediated entertainment detracts from social engagement is that it displaces time spent on other activities (Brehm & Rahn, 1997; Putnam, 1995a; Putnam, 2000; Nie & Erbring, 2000, 2002; Nie and Hillygus, 2002). The mobile phone is unique from other media in that affords use virtually anytime, anywhere. Individuals commonly utilize the technology to resurrect “dead time” in situations such as waiting in line or traveling on public transportation (Ito & Okabe, 2005). Conceivably, this flexibility in when and where individuals use mobile communication technology mitigates the extent to which it displaces time engaged in other social activities.

Furthermore, compared to other media mobile telephony is characteristically interactive in that it is primarily used for person-to-person interaction. This is not to suggest that all recreational uses of the mobile phone involve human interaction (e.g., playing games), but that many do. For example, Wei (2008) regards “passing time” by chatting with others as a form of mobile-mediated recreation. Several of the items that comprise the factor for recreation in this study assess the extent to which participants use the technology to obtain and share information pertaining to hobbies, personal interests, and fun. These types

of activities involve an exchange with others who share similar interests, and resonate with the benefits of informational and communicative media use discussed by Norris and Jones (1998). It is possible that mobile-mediated recreational exchanges engender a community of practice that provides a space for expression and exposure to perspectives on civic and political matters, especially if those matters are germane to the personal interests and hobbies of the users.

One way of testing this interpretation is to examine age-related patterns in the links between mobile phone use for recreation and involvement in public life. Research shows that older adults tend to have greater involvement in public affairs than younger individuals (Quintelier, 2007). Accordingly, one might expect age to interact with mobile phone use for personal recreation such that the positive associations between recreational use and engagement would be stronger for older adults, whose personal interests and hobbies are more likely than younger individuals to touch on civic and political matters. To examine this, we ran post hoc regression analyses using age as a moderating variable, which yielded significant results for recreation (see Table 4). Indeed, as age increases, the associations between use for recreation and participation in civic life become stronger (see Figures 3 and 4), suggesting that this form of mobile communication is a more valuable resource for public involvement among the older population of users. In fact, recreation is the only dimension of mobile phone use in this study

for which age yields a significant interaction effect, revealing a distinctive trend in the intersections between mobile communication, age, and civic/political engagement. These findings are particularly interesting considering the Internet tends to be a more useful resource for civic engagement among younger users than older adults (Shah et al., 2001).

As expected, the present study found a positive main relationship between use of the mobile phone for information exchange and civic and political involvement. Past studies have also found that use of the Internet for this purpose fosters engagement in the public sphere (Shah et al., 2001), and the findings from this study thus indicate a consistent trend for use of mobile communication technology. Put simply, it appears that informational use of the mobile phone has begun to work its way into the realm of common activities that contribute to civil society, in addition to its use in the formation of smart mobs to bring about rapid political change (Rheingold, 2002).

In a practical sense, the findings for information exchange suggest that civic organizations and their members can benefit by incorporating mobile communication into the mix of media used for information access and distribution. There is a variety of ways this can be accomplished. One way is for institutions and organizations to develop programs involving information updates through text messages to their members. This approach is beginning to catch on as a way of connecting college students with their universities. For example, Penn

State University has implemented an “E2Campus” program in which subscribers receive information and news updates via text messaging (Omnilert, 2006). These types of programs have attracted the attention of hundreds of other academic institutions, especially in the aftermath of the April 2007 campus shooting that took place at Virginia Tech (Frank, 2007). In addition to keeping people connected to schools and community organizations, text message updates can also be an effective way to increase voter turnout when reminders are sent out the night before an election (Dale & Strauss, 2007). Text messaging can be an effective resource for civil society when messages flow the other direction as well. Citizens can use text messaging to sign petitions, register to vote, make their voices heard to policy makers, and report environmental destruction (ShareIdeas, 2007).

In addition to the use of text messaging, civic organizations can develop more robust mobile applications for keeping their members connected and informed. For example, in Oakland, CA, the non-profit group Internet Sexuality Information Services, Inc. uses mobile technology to provide sexual health information to low-income youth. For this program, users enter a five digit number into their handset to access a menu of options providing facts and information about sex and health-related topics. The service also refers users to a local clinic where they can access free, confidential services (SexInfoSF, 2008). The direct benefits of such programs are obvious, but these types of initiatives can

also have second-order effects when individuals disseminate content they access on their mobile devices to others.

While the findings from this study highlight the possible benefits of mobile-mediated information exchange for civic and political engagement, they also illustrate that these benefits are not uniformly accessible. Findings show that mobile communication competence moderates the relationships between informational use and engagement. Individuals who feel more comfortable using mobile telephony and use it for exchanging information about public affairs tend to be more civically and politically engaged than those who are less comfortable with the technology. This finding underscores an emergent dimension of the digital divide – technological skill. Hargittai (2002) argues that beyond the traditional divide between the haves and have-nots, researchers should also be concerned with a “second-level” digital divide in the form of online skills, particularly as they apply to using computers to search for, access, and exchange information over the Internet. The core argument here is that increased skill at information exchange through the computer contributes to increased opportunity and engagement in society (DiMaggio, Hargittai, Celeste, & Shafer, 2004; Hargittai, 2002). The present study’s results support this argument while extending it to the context of mobile communication technology.

Extending this “second-level” digital divide to mobile telephony will become even more important as the technology continues to develop from a

resource primarily used for point-to-point interpersonal contact into a multi-faceted tool for information access, distribution, and management. The evolution of the mobile phone into a sophisticated computer-like device is already evident through wireless innovations such as the BlackBerry, T-Mobile's Sidekick, and Apple's iPhone. These devices and others like them are not merely mobile telephones, but also powerful tools for accessing the Web, IMing, sending e-mail, determining user locations, banking, commerce, and numerous other emergent appropriations. The future offers continued development and opportunities for customization through open-source platforms such as Google and partners' gPhone application. While the rapid evolution of mobile technology creates new affordances for people to be connected and informed, it also poses new challenges for those with lower levels of technological fluency, and this can have a detrimental effect on one's ability to maximize the benefits of mobile communication technology. Therefore, communities and civic organizations that make use of mobile applications for keeping their members connected and active should consider offering resources to help those with lower levels of technological fluency feel more comfortable with advanced features and applications. Such resources might include printed materials, training sessions, or representatives accessible by phone who can handle questions about the technology and its applications.

Concluding remarks

The findings from this study help answer some questions about mobile communication and social capital and also open new avenues for research. Whereas much of the previous research demonstrates how mobile communication bonds social network ties, this study sheds new light on the potential bridging capacity of the technology to connect users with their community and the political process. Findings suggest that use of the technology for the exchange of information and recreational interests has come to play a constructive role in civic life. With the structure of these relationships as a foundation, a next step in the research is to explore whether the role of mobile communication technology in public life is driven by its use, engagement in civil society, or both. The direction of causality can be explored through either experimental or multi-wave panel approaches. As research moves forward with this area of inquiry, it is important to be mindful of the moderating effect of comfort with the technology and the practical application of this finding for making it easier to understand and use for information exchange among those individuals with lower levels of comfort. This will be especially important as mobile telephony continues to merge with the computer through new innovations in software, hardware, and network operations.

In addition, results of this study bolster the theoretical value of a uses and gratifications approach, underscoring the importance of usage patterns and user motivations in research on the social consequences of new communication

technology. For decades, scholars have recognized the influence of user agency on outcomes of media consumption. However, in today's highly personalized media environment, agency plays an increasingly important role. Today's new media afford greater control in how, where, and why individuals use media. Lines separating mass and interpersonal communication are blurred as individuals use networked devices and applications for information, recreation, and connecting with others. In contrast to the traditional "media effects" paradigm with emphasis on exposure to broadcast media content, the uses and gratifications approach is better suited to account for the heightened level of personalization, choice, and control associated with new media.

References

- Blumler J. G., & Katz, E. (1974). *The uses of mass communications: Current perspectives on gratifications research*. Beverly Hills, CA: Sage.
- Brehm, J., & Rahn, W. M. (1997). Individual level evidence for the causes and consequences of social capital. *American Journal of Political Science*, 41(3), 999–1023.
- Bunz, U. (2004). The computer-email-web (CEW) fluency scale – Development and validation. *International Journal of Human-Computer Interaction*, 17(4), 477-504.
- Campbell, S. W., & Kwak, N. (2007, May). *Mobile communication and social capital in localized, glocalized, and scattered networks*. Paper presented at the ICA pre-conference, Mobile Communication: Bringing us Together or Tearing us Apart?, San Francisco.
- Campbell, S. W., & Neer, M. R. (2001). The relationship of communication apprehension and interaction involvement to perceptions of computer-mediated communication. *Communication Research Reports*, 18(4), 391-398.
- Campbell S. W., & Park, Y. J. (2008). Social implications of mobile telephony: The rise of personal communication society. *Sociology Compass*, 2(2), 371-387doi: 10.1111/j.1751-9020.2007.00080.x

- Castells, M., Fernandez-Ardevol, M., Qiu, J., & Sey, A. (2007). *Mobile communication and society: A global perspective*. Cambridge, MA: MIT Press.
- Cronbach, L. J. (1987). Statistical tests for moderator variables: Flaws in analyses recently proposed. *Psychological Bulletin*, *102*, 414-417.
- Coleman, J. S. (1990). *Foundations of social theory*. Cambridge, MA: Harvard University Press.
- Dale, A., & Strauss, A. (2007, September). *Text messaging as a youth mobilization tool: An experiment with a post-treatment survey*. Paper presented at the annual meeting of the American Political Science Association, Chicago.
- DiMaggio, P., Hargittai, E., Celeste, C., & Shafer, S. (2004). Digital inequality: From unequal access to differentiated use. In K. Neckerman (Ed.), *Social inequality* (pp. 355-400). New York: Russell Sage Foundation.
- Eveland, W. P., Jr. (1997). Interactions and nonlinearity in mass communication: Connecting theory and methodology. *Journalism and Mass Communication Quarterly*, *74*, 400-416.
- Frank, T. (2007, April 23). Schools weigh text alerts for crises. *USA Today*. Retrieved from http://www.usatoday.com/tech/news/techpolicy/2007-04-23-text-alerts-vt_N.htm

- Habermas, J. (1989). *The Structural Transformation of the Public Sphere: An inquiry into a category of bourgeois society*. Cambridge, MA: MIT Press.
- Habuchi, I. (2005). Accelerating reflexivity. In M. Ito, D. Okabe, & M. Matsuda (Eds.), *Personal, portable, pedestrian: Mobile phones in Japanese Life* (pp. 165-182). Cambridge, MA: MIT Press.
- Hacker, K., & Steiner, R. (2001). Hurdles of access and benefits of usage for Internet communication. *Communication Research Reports*, 18(4), 399-407.
- Hampton, K., & Wellman, B. (2001). Long distance community in the network society: Contact and support beyond Netville. *American Behavioral Scientist*, 45(3), 476-495.
- Hargittai, E. (2002). Second-level digital divide: Differences in people's online skills. *First Monday*, 7(4), Retrieved from http://www.firstmonday.org/Issues/issue7_4/hargittai/
- Ito, M. (2004). *Personal, portable, pedestrian: Mobile phones in Japanese life*. The Southern California Digital Culture Group. Los Angeles: Annenberg Center for Communication.
- Ito, M., & Okabe, D. (2005). Intimate connections: Contextualizing Japanese youth and mobile messaging. In R. Harper, L. Palen, & A. Taylor (Eds.), *The inside text: Social, cultural, and design Perspectives on SMS* (pp. 127-143). Dordrecht, Springer.

- Jaccard, J., Turrisi, R., & Wan, C. K. (1990). *Interaction effects in multiple regression*. Newbury Park, CA: Sage.
- Katz, J. E., & Aakhus, M. A. (Eds.) (2002). *Perpetual contact: Mobile communication, private talk, public performance*. Cambridge, UK: Cambridge University Press.
- Kwak, N., Shah D. V., Holbert, R. L. (2004). Connecting, trusting, and participating: The direct and interactive effect of social associations. *Political Research Quarterly*, 57(4), 643-652.
- Kwak, N., Williams, A., Wang, X., & Lee, H. (2005). Talking politics and engaging politics: An examination of the interactive relationships between structural features of political talk and discussion engagement. *Communication Research*, 32, 87-111.
- LaRose, R. L., Eastin, M., & Gregg, J. L. (2001). Reformulating the internet paradox: social cognitive explanations of internet use and depression. *Journal of On-line Behavior*, 1(2). Retrieved from <http://behavior.net/JOB/v1n2/paradox.html>
- Ling, R. (2004). *The mobile connection: The cell phone's impact on society*. San Francisco: Morgan Kaufman Publishers.
- Ling, R. (2004). *New tech, new ties: How mobile communication is reshaping social cohesion*. Cambridge, MA: MIT Press.

- Ling, R., & Yttri, B. (1999). *Nobody sits at home and waits for the telephone to ring: Micro and hyper-coordination through the use of the mobile phone* (Report 30/99). Kjeller, Norway: Telenor Research and Development.
- Ling, R., & Yttri, B. (2002). Hyper-coordination via mobile phones in Norway. In J. Katz & M. Aakhus (Eds.), *Perpetual contact: Mobile communication, private talk, public performance* (pp.139-169). Cambridge, UK: Cambridge University Press.
- Ling, R., Yttri, B., Anderson, B., & DiDuca, D. (2003). Mobile communication and social capital in Europe. In K. Nyiri (Ed.), *Mobile democracy: Essays on society, self, and politics*. Vienna: Passagen Verlag.
- Leung, L., & Wei, R. (2000). More than just talk on the move: Uses and gratifications of the cellular phone. *Journalism and Mass Communication Quarterly*, 77(2), 308-320.
- McLeod, J. M., Daily, K., Guo, Z., Eveland, W. P., Jr., Bayer, J., Yang, S., et al. (1996). Community integration, local media use and democratic processes. *Communication Research*, 23, 179-209.
- McLeod, J. M., Scheufele, D. A., & Moy, P. (1999). Community, communication, & participation: The role of mass media and interpersonal discussion in local political participation. *Political Communication*, 16, 315-336.
- McQuail, D. (1983). *Mass Communication Theory* (1st ed.). London: Sage.
- McQuail, D. (1987). *Mass Communication Theory* (2nd ed.). London: Sage.

- Nakajima, I., Keiichi, H., & Yoshii, H. (1999). Diffusion of cellular phones and PHS and their social meaning. *Journal of Information and Communication Research, 16*(3).
- Nie, N. H. & Erbring, L. (2000). *Internet and society: A preliminary report*. The Stanford Institute for the Quantitative Study of Society. Retrieved from http://www.stanford.edu/group/siqss/Press_Release/internetStudy.html
- Nie, N. H., & Erbring, L. (2002). Internet and society: A preliminary report. *IT & Society 1*(1): 275-283. Retrieved March 13, 2008 from <http://www.stanford.edu/group/siqss/itandsociety/v01i01/v01i01a18.pdf>
- Nie, N. H., & Hillygus, S. D. (2002). The impact of Internet use on sociability: Time-diary findings. *IT & Society, 1*(1), 1-20. Retrieved from <http://www.stanford.edu/group/siqss/itandsociety/v01i01/v01i01a01.pdf>
- Norris, P. (1996). Does television erode social capital? A reply to Putnam. *PS: Political Science and Politics, 29*(3), 474–480.
- Norris, P. (2004). The bridging and bonding role of online communities. In P. Howard & S. Jones (Eds.) *Society online: The Internet in context*. Thousand Oaks, CA: Sage.
- Norris, P., & Jones, D. (1998). Virtual democracy. *Harvard International Journal of Press/Politics, 3*(2), 1–4.

- Omnilert, LLC. (August 16, 2006). *Penn State Creates 'PSUTXT' Service Using e2Campus SMS Text Messaging System, according to Omnilert, LLC* [Press release]. Retrieved from <http://news.thomasnet.com/companystory/491718>
- Putnam, R. D. (1993). The prosperous community: Social capital and public life. *The American Prospect*, 13, 35-42.
- Putnam, R. D. (1995a). Bowling alone: America's declining social capital. *Journal of Democracy*, 6(1), 65-78.
- Putnam, R. D. (1995b). Tuning in, tuning out: The strange disappearance of social capital in America. *PS: Political Science and Politics*, 28(4), 664-683.
- Putnam, R. D. (2000) *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon & Schuster.
- Putnam, R. D., & Yonish, S. (1999, May). *How important are random samples? Some surprising new evidence*. Paper presented to the annual meeting of the American Association of Public Opinion Research, St. Petersburg, FL.
- Quintelier, E. (2007). Differences in political participation between young and old people. *Contemporary Politics*, 13, 165-180.
- Rheingold, H. (1993). *The virtual community: Homesteading on the electronic frontier*. New York: HarperCollins.
- Rheingold, H. (2002). *Smart mobs: The next social revolution*. Cambridge, MA: Perseus.

- SexInfoSF (2008). *SexInfoSF: A New Text Message Service for Youth*. Retrieved from <http://www.sextextsf.org/>
- Shah, D. V. (1998). Civic engagement, interpersonal trust, and television use: An individual-level assessment of social capital. *Political Psychology, 19*(3), 469-496.
- Shah, D. V., Cho, J., Eveland, W. P., Jr., & Kwak, N. (2005). Information and expression in a digital age: Modeling internet effects on civic participation. *Communication Research, 32*(5), 531-565.
- Shah, D. V., Kwak, N., & Holbert, R. L. (2001). "Connecting" and "disconnecting" with civic life: Patterns of Internet use and the production of social capital. *Political Communication, 18*(2), 141-162.
- ShareIdeas. (2007). *Mobile Knowledge for Social Change*. Retrieved from http://www.shareideas.org/index.php/Category:Civic_engagement
- Tewksbury, D., & Althaus, S. L. (2000). An examination of motivations for using the World Wide Web. *Communication Research Reports, 17*(2), 127-138.
- van Dijk, J. (1999). *The network society: Social aspects of new media*. London: Sage.
- van Dijk, J., & Hacker, K. (2003). The digital divide as a complex and dynamic phenomenon. *The Information Society, 19*(4) 315-326.
- Wei, R. (2008). Motivations for using the mobile phone for mass communications and entertainment. *Telematics and Informatics, 25*(1), 36-46.

Wellman, B., Boase, J., & Chen, W. (2002). The networked nature of community online and offline. *IT & Society*, 1(1) 151-165.

Zillman, D. (1985). The experimental explorations of gratifications from media entertainment. In D. Zillman & J. Bryant (Eds.), *Selective exposure to communication* (pp. 225–239). Hillsdale, NJ: Erlbaum.

Footnote

1. For the medium competence group, the mean value of the variable was assigned; for the high and low competence groups, the values one standard deviation higher and lower than the mean, respectively, were used. For the other variables in the model, mean values were assigned. For gender, female category was chosen.

Table 1

Factor Analysis of Mobile Phone Use Items

Item	Personal Recreation	Sociability	Information Exchange
Go online to share content that is entertaining	.88	-.01	-.04
Browse web just for fun	.84	.12	.11
Go online to share content about hobbies or personal interests	.83	.05	.11
Go online to upload content that is mostly just for fun	.76	-.05	-.23
Go online for games and other forms of entertainment	.67	-.06	-.15
Go online to get information about hobbies or personal interests	.60	.23	-.16
Call friends or family	-.02	.79	.05
Use text/instant messages to interact with friends or family	.12	.78	.00
Email friends or family	.25	.51	-.15
Go online to express my opinions about issues	.23	-.16	-.83
Go online to share news items	.10	-.12	-.81
Use text/instant messages to discuss political	-.07	.16	-.80

matters

Go online to read opinions of others regarding issues	.30	-.18	-.76
Call others to discuss political matters	-.18	.33	-.64
Eigenvalues	6.16	1.62	1.53

Note: Total variance accounted for: 66.5%

Table 2

Predictors of Engagement

	<u>Civic Engagement</u>		<u>Political Participation</u>	
	β	<i>t</i> Value	β	<i>t</i> Value
Control Variables				
Age	.05	1.20	-.06	-1.40
Gender (high: female)	.09*	2.19	.01	.25
Education	.14**	3.20	.05	1.37
Household income	.01	.33	-.02	-.56
Political interest	.01	.31	.11**	2.71
R ² (%)	8.0%***		11.0%**	
Communication Variables				
Newspaper use	-.01	-.23	.02	.47
Television news use	-.01	-.29	.04	1.15
Political talk	.24**	5.03	.29**	6.90
Incremental R ² (%)	5.8**		9.9%**	
Mobile Phone Use				
Information exchange	.15**	2.80	.27**	5.81
Sociability	.04	.94	-.06	-1.34
Personal recreation	.09#	1.85	.14**	3.05
Incremental R ² (%)	5.1**		12.2**	
Final R ² (%)	18.9**		33.2**	

Note: Entries are standardized regression coefficients.

$p < .10$; * $p < .05$; ** $p < .01$

Table 3

*Interactive Relationships between Mobile Phone Use and Perceived Competence
with Mobile Telephony*

	<u>Civic Engagement</u>		<u>Political Participation</u>	
	β	<i>t</i> Value	β	<i>t</i> Value
Prior Blocks (R^2 , %)	20.5**		35.3**	
Interaction Terms				
Information exchange X Perceived competence	.16***	2.81	.14***	2.64
Sociability X Perceived competence	-.02	-.44	-.02	-.55
Personal recreation X Perceived competence	-.07	-1.08	-.10#	-1.76
Incremental R^2 (%)	3.2**		3.1**	
Final R^2 (%)	23.7**		38.4**	

Notes:

1. Prior blocks include age, gender, education, household income, political interest, and newspaper news use, television news use, political talk, and perceived competence with mobile telephony.
2. Entries are standardized regression coefficients after the control.

$p < .10$; * $p < .05$; ** $p < .01$

Table 4

Interactive Relationships between Mobile Phone Use and Age

	<u>Civic Engagement</u>		<u>Political Participation</u>	
	β	<i>t</i> Value	β	<i>t</i> Value
Prior Blocks (R^2 , %)	18.9**		33.2**	
Interaction Terms				
Information exchange X Age	- .00	-.04	-.07	.94
Sociability X Age	.02	.32	-.05	-1.33
Personal recreation X Age	.16**	2.80	.12*	2.29
Incremental R^2 (%)	1.2*		1.2*	
Final R^2 (%)	20.1**		34.5**	

Notes:

1. Prior blocks include age, gender, education, household income, political interest, and newspaper news use, television news use, and political talk.
2. Entries are standardized regression coefficients after the control.

$p < .10$; * $p < .05$; ** $p < .01$

Figure 1

Predicting Civic Engagement with Mobile-Mediated Information Exchange X

Competence with Mobile Telephony

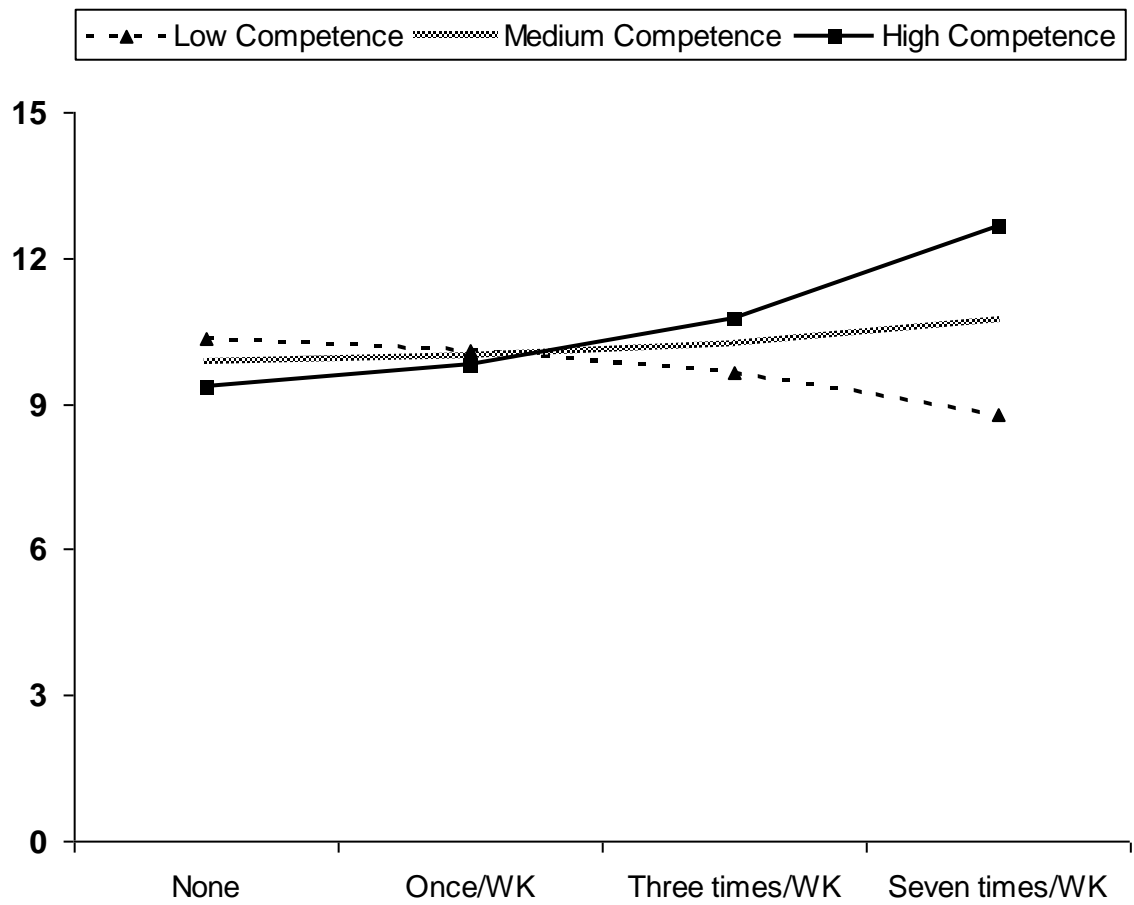


Figure 2

Predicting Political Participation with Mobile-Mediated Information Exchange X

Competence with Mobile Telephony

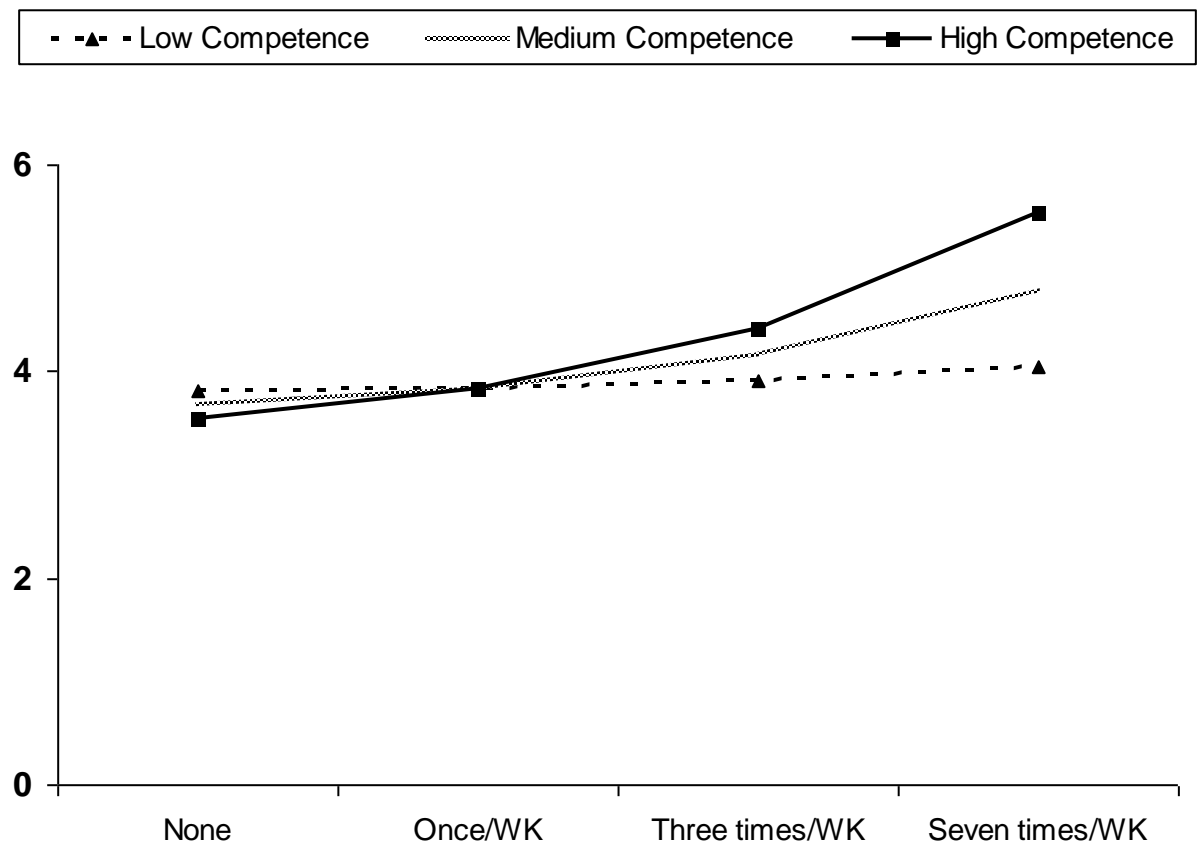


Figure 3

Predicting Civic Engagement with Age X Mobile-Mediated Recreation

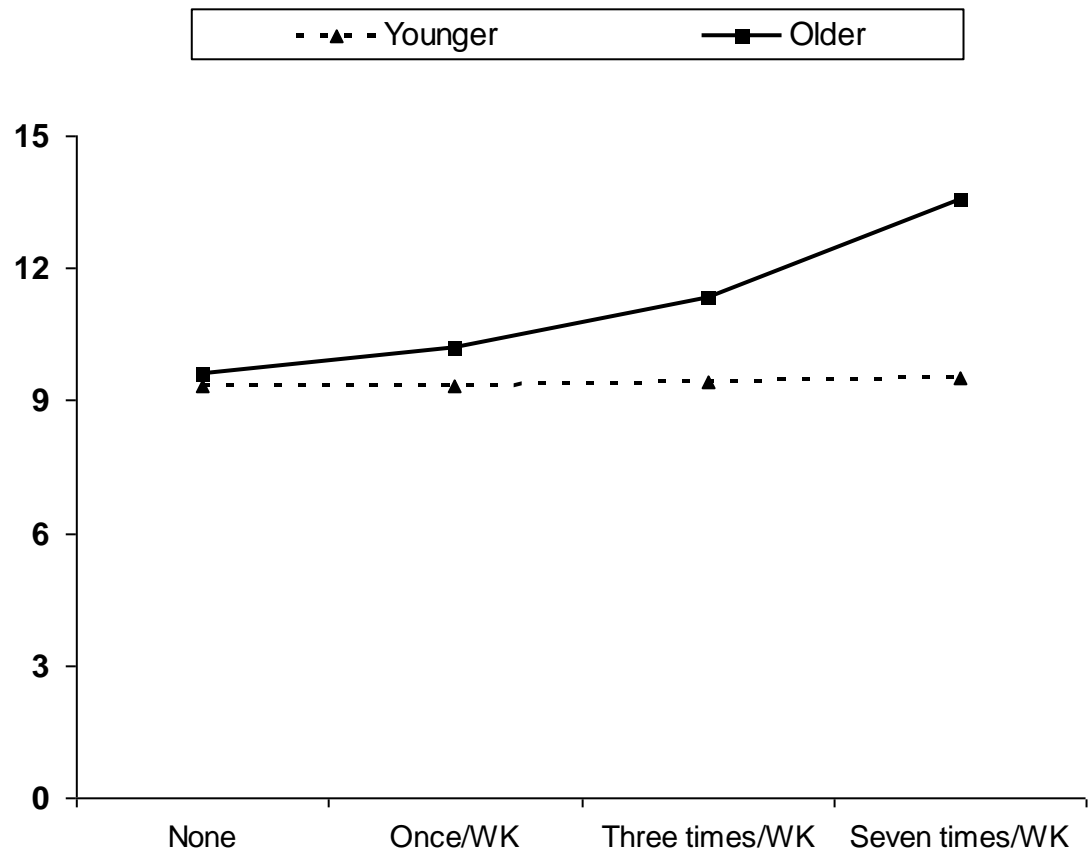


Figure 4

Predicting Political Participation with Age X Mobile-Mediated Recreation

