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Abstract

As Internet use grows globally, the digital divide has shifted beyond concerns about access and adoption to more subtle questions of skill, usage, and capital, and to new venues such as social networking sites. Do digital divides persist across different capital-enhancing activities used on different social networking sites? The current study analyzes a context where social ties are more salient for resource access due to untrustworthy institutions, and large gaps exist between elites and non-elites. Demographic divides characterize the 31% of Armenian adults using two major social networking sites in 2013: Facebook and Odnoklassniki. Facebook is used more for getting information, while Odnoklassniki more for gaming. However, the divides in social networking sites usage are much greater than in activity use, with implications for capital enhancement and stratification.

Somewhat Separate and Unequal:
Digital Divides, Social Networking Sites, and Capital-Enhancing Activities

There was initially great hope that the Internet would provide a virtual space where inequalities could dissolve and individuals could interact with others across social, temporal, and spatial boundaries. Decades after the public began using the Internet, we now know that inequalities are easily replicated online. Nonetheless, there are opportunities for decreasing digital divides, such as engaging in various online activities that provide opportunities for enhancing social capital. This study considers the tension between the digital divide nature and the capital-enhancing (CE) nature of social networking sites (SNSs). The basic argument is that if a) there are digital divide differences in use of those different SNSs, then b) using different SNSs, and c) using different activities on those SNSs, may foster different potentials for capital enhancement, and d) purported benefits from social capital, which could e) reinforce existing inequalities, or f) reduce the potential for reducing them. This argument is reflected in two primary research questions: First, does usage of SNS in general and two distinct SNSs in particular reflect basic digital divides? Second, are there subsequent divides in usage of CE SNS activities across these two sites?

Digital Divide—Concept and Influences

The *digital divide* is a gap between people (or organizations, social groups, or geopolitical entities) in their communication technology awareness, adoption or ownership, use, and/or skill (DiMaggio, Hargittai, Celeste, & Shafer, 2004; Helsper, 2012, 2016; Katz & Gonzalez, 2016; Robinson et al., 2015; van Deursen & van Dijk, 2015; van Dijk, 2005, 2012, 2013). These differences are consistently associated with socio-demographic factors, often replicating offline stratification (Helsper, 2012). Theorizing has advanced to now consider second (skill-based) and third level (outcome-based) digital divides (van Deursen & Helsper, 2015). Third level divides include the usage gap: differences in Internet usage, practices, and application (van Deursen & van Dijk, 2013; van Dijk, 2005). Scholars frequently frame this gap in terms of CE activities.[1]

Digital Divide and Capital Enhancement

Social capital. Social inequality includes the forms, sources, and structure of social stratification and its consequences on mobility and people's chances in life (Grusky & Ku, 2008). It is frequently understood in terms of access to capital. Capital comes in economic, cultural, and social forms. Social capital is "[T]he aggregate of the actual or potential resources which are linked to the possession of a durable network of… relationships" (Bourdieu, 1997, p. 51). Similarly, Lin (1999, p. 39) defines social capital in an explicitly individual orientation "as an investment in social relations on the part of individuals through which they gain access to embedded resources to enhance expected returns on instrumental or expressive actions." Others emphasize the "public good" aspect of social capital, created, shared, and accessed within a network (Putnam, 2000). Given the network-nature of SNSs, refers to social capital at both the individual and the network level.

Social capital is typically categorized as *bonding* or *bridging*. Bonding reaffirms frequent, reciprocal close ties within one's network and helps in quickly disseminating information and fulfilling relational obligation (homophilous others). Bridging involves relationships beyond one's close circle to infrequent, weak, non-redundant and diverse contacts and sources (heterophilous others) (Putnam, 2000). One form of bridging relation is occupying a structural hole, whereby one member can broker among otherwise disconnected, nonredundant

members (Burt, 2004). Bonding and bridging social capital can complement each other, by providing access to different kinds of resources (Wilken, 2011).

Capital-enhancing activities. People potentially can use social capital for both instrumental benefits (e.g., information acquisition, financial gains, and job leads) and emotional support (e.g., empathetic learning and expression of sympathy) (Coleman, 1988; Kikuchi & Coleman, 2012; Putnam, 2000). Thus differential ability to enhance one's capital through different activities matters greatly (Lin, 1999). Thus differential ability to enhance one's capital through different activities relational networks in society matters greatly (Lin, 1999). Popularized in international development policy in the 1980s and 1990s, examples of "capital-enhancing" activities like education and vocational training were highlighted as having the ability to enhance human capital (e.g., Galor & Moav, 2004).

Within scholarship on digital inequalities, the concept of *capital enhancement* (CE) has been defined in a variety of ways, but was initially used by DiMaggio et al. (2004), who distinguished between capital-enhancing and recreational online activities. They proposed that "the former are types of online actions from which people may benefit whereas the latter likely have fewer pay-offs related to one's social status" (Hargittai, 2010, p. 95). Hargittai and colleagues' work on capital enhancement focuses on digital uses that may enhance one's life chances, including activities that may lead to more informed political participation, career advancement, or information seeking about financial and health services (Hargittai & Hinnant, 2008). For Hargittai and colleagues, "engaging in CE activities is more likely to offer users opportunities for upward mobility than certain other types of online activities (e.g., checking sports scores, reading jokes)" (Hargittai & Hinnant, 2008, pp. 606-607). These activities also help save time and generate new opportunities through better and more diverse information and resources not otherwise available (Dobransky & Hargittai, 2006). Van Duersen and colleagues also emphasize opportunities: "capital-enhancing internet activities (e.g. seeking financial information, learning about public issues, and gaining work assistance) increases [sic] opportunities in the offline world, while recreational Internet activities (e.g., browsing sites of personal interest, playing games, and socializing with strangers) is [sic] less likely to enhance capital" (van Deursen, van Dijk, & ten Klooster, 2015, p. 261). Economic, social, and cultural capital are needed to access and use the Internet (and thus SNSs), but such usage may also affect those forms of capital. Thus, van Deursen, van Dijk, and ten Klooster (2015) argue that differential involvement in online (Internet) capital-enhancing activities may reinforce and reproduce offline inequalities. For example, those less advantaged "tend to use Internet in recreation and less capital-enhancing ways" (p. 261).

Blank and Groselj (2015) extend the capital-enhancement idea further, stating that: "[D]imensions that relate to status and power are more important for activities that involve formal links to the larger society: classic media use, information seeking, work and school, and political activities. These are *capital-enhancing* activities (Zillien and Hargittai, 2009) that link people to the world of jobs, the economy, politics, and information" (Blank & Groselj, 2015, p. 2274).

We do note, as have others (Boonaert & Vettenburg, 2011; Halford & Savage, 2010; Sims, 2014), that assuming that particular types of Internet and SNS use enhance capital, and that others do not, does not acknowledge that people learn and interact in a variety of ways, and that any particular online activity may generate more, or less, social capital. Yet, as summarized below, the social capital opportunities afforded by SNS activities are clear as well as varied.

Thus our fundamental criterion for a capital-enhancing activity is whether it can potentially improve social capital, at the individual or network level.

Digital Divide and Social Networking Sites

Recently, social media and social networking sites (SNSs) have provided additional digital venues for social capital enhancement (Ellison, Steinfield, & Lampe, 2011; Ellison, Vitak, Gray, & Lampe, 2014; Ellison & Vitak, 2015), especially for the bridging type of social capital (Ellison, Lampe, Steinfield, & Vitak, 2010; Jin, 2015; E. Lee, Kim, & Ahn, 2014; Tian, 2016), but also for bonding (Jin, 2015; E. Lee et al., 2014; McEwan, 2013; Rabby & Walther, 2003; Wright, 2004).

But, as emphasized in the digital divide literature, not everyone has the same opportunity to access new networks and novel information via digital spaces. Moreover, not everyone has equal opportunity to engage in CE digital activities on particular sites. Hargittai's (2007) pivotal early study of American young adults' use of the SNSs MySpace and Facebook found that gender, race, ethnicity, and parental educational background were all associated with both being an SNS user at all, as well as with which SNSs individuals used. Ahn (2011) found similar socio-demographic differences among American teenagers' users of MySpace or Facebook. boyd (2013) describes Facebook as a kind of digital suburb, whose users disdained MySpace and its users as a kind of lower socio-economic-culture ghetto. More recently, Blank and Lutz's (2016) study of UK social media users identified significant demographic differences between users of six different SNS. These divides decrease the utility of SNSs for bridging capital for lower-status individuals because of those users' lower likelihood of accessing higher-capital networks within and across SNSs.

Further, there are also divides in levels and types of activities engaged within SNSs, which could affect CE. Overall, less elite individuals *do* tend to engage in activities considered non or less capital-enhancing (Park & Yang, 2017). For example, Junco (2012, 2013) concluded that lower socioeconomic status university students were more likely to use Facebook for entertainment-based activities, and less likely for communication and sharing. Similarly, Correa (2015) showed that those with more privileged backgrounds used Facebook for information and mobilizing purposes. Micheli (2016) indicated that low income high school students in Italy were more likely to engage in "horizontal" communicative and relational activities on SNSs with peers, while upper class youth were more concerned with "vertical" CE activities related to parental socialization. However, Gonzales (2015) found that racially or educationally disadvantaged individuals reported more online network expansion rather than maintenance. Such new, bridging, ties provide the greatest opportunities for reducing inequalities. And Smith (2013) suggested that despite finding racial differences in some SNS activities, the relational maintenance activities that African-Americans did engage in had potentially positive social capital benefits.

SNS Activities and Capital Enhancement

Others have proposed or found that specific SNS activities are more, or less, capital-enhancing, here grouped into three general mechanisms: relational maintenance, access to new relationships and information, and reputation building.

Relational maintenance. Relational maintenance is how individuals sustain ties with others, particularly for the purpose of future access to resources and support, which sometimes involves sustaining various relational conditions: keeping a relationship in existence, keeping a relationship in a specified state or condition, keeping a relationship in a satisfactory condition, and/or repairing a relationship (Dindia & Canary, 1993). Information and communication

technologies, particularly SNSs, afford easier ways to maintain such relationships (Pearce, Barta, & Fesenmaier, 2015), increasing frequency of communication (Stafford & Hillyer, 2012) and lowering transaction costs (Ellison, Gray, Lampe, & Fiore, 2014; Ellison, Vitak, et al., 2014; Tong & Walther, 2011). Different SNS activities may lead to different relational maintenance and communication activities that are associated with different social capital outcomes (Ellison et al., 2011; Ellison, Vitak, et al., 2014; Quinn, 2016; Vitak, 2014; Wohn, Lampe, Wash, Ellison, & Vitak, 2011).

One way to engage in relational maintenance on SNSs is through *direct communication with known others* (Antheunis, Abeele, & Kanters, 2015; Burke, Kraut, & Marlow, 2011; Correa, 2015; E. Lee et al., 2014; J. Y. Lee, Park, Na, & Kim, 2016; Quinn, 2016). "Directed communication has the potential to improve both bonding and bridging social capital for two conceptually distinct, although empirically interrelated reasons: the content of the communication and the strength of the relationship with the communication partner" (Burke, Kraut, & Marlow, 2011, p. 572). Direct communication can occur in a variety of ways on SNSs, such as by communicating with friends, keeping in touch with old friends, emailing, and/or messaging (Dobransky & Hargittai, 2006; Lissitsa, 2015a, 2015b; Lissitsa & Chachashvili-Bolotin, 2014; Pearce & Rice, 2013; Stern & Adams, 2010; Wei, 2012). Van Deursen, van Dijk, and ten Klooster (2015) use the term *social interaction*, while Lissitsa (2015a, 2015b) simply describes this as *talk*. *Playing SNS games* can also provide CE opportunities via relational maintenance, in particular by establishing common ground with low transaction costs (Wohn, Lampe, Wash, Ellison, & Vitak, 2011). Many studies also identified CE implications of game playing (Lissitsa, 2015a; Pearce & Rice, 2013; Stoycheff, Nisbet, & Epstein, 2016; van Deursen et al., 2015; Zach & Lissitsa, 2016).

Sharing is an important part of the reciprocal nature of social capital and is also part of relationship development and maintenance. SNS activities related to sharing have been associated with increased social capital, in particular the general sharing of information and content (Chang & Chuang, 2011; Gray, Ellison, Vitak, & Lampe, 2013; Lampe, Vitak, Gray, & Ellison, 2012; Steijn & Schouten, 2013), for example posting photos, video, or music. Posting photos is also a way to maintain relationships (Hunt, Lin, & Atkin, 2014; Oeldorf-Hirsch & Sundar, 2016), and according to Young (2011), "a form of social action as photos can be used to strengthen connections with close offline friends" (p. 30), sometimes through seeking affection (Malik, Dhir, & Nieminen, 2015), and has been associated with increased social capital (E. Lee et al., 2014; Steinfield, DiMicco, Ellison, & Lampe, 2009). Sharing photos "increases our capacity for emotion and to feel 'together'" (Rivière, 2006, p. 174). Relational maintenance was noted in one study as the most important motivation for SNS photo sharing (Oeldorf-Hirsch & Sundar, 2016).

Access to new relationships and information. *New relationships* can lead to new opportunities and resources, increasing social capital (Bohn, Buchta, Hornik, & Mair, 2014), particularly bridging capital. And *meeting new people* via SNSs is commonly argued to be capital enhancing (Correa, 2015; Lissitsa & Chachashvili-Bolotin, 2014; Zach & Lissitsa, 2016), and may also occur via SNS games (Wohn, Lampe, Wash, Ellison, & Vitak, 2011). Information is a resource and is strongly tied with social capital (Adler & Kwon, 2002). Thus *new information* via SNSs is also capital-enhancing (Blank & Groselj, 2015; Lissitsa, 2015a, 2015b; Lissitsa & Chachashvili-Bolotin, 2014; McCloud, Okechukwu, Sorensen, & Viswanath, 2016; Micheli, 2015, 2016; Stern & Adams, 2010; van Deursen et al., 2015; Willig, Waltorp, & Hartley, 2015; Zach & Lissitsa, 2016), particularly with regard to news (Blank, 2013; Reynolds

& Chiu, 2016; Stoycheff et al., 2016). Depending on the type of quiz, and whether it involves useful feedback, *online quizzes* may provide access to both external information and increased personal insight. Using SNSs to satisfy *a need for freedom of expression* and *desire for information* are capital-enhancing by improving democratic awareness and civic participation (Stoycheff et al., 2016).

Reputation building. Reputation, the aggregate asset of received recognitions, is an important part of social capital because it enhances the sharing of resources as well as social capital itself (Burt, 2000; Lin, 2001). SNSs can provide opportunities for reputation building and maintenance (Burke, Marlow, & Lento, 2009; Donath & boyd, 2004; Pearce et al., 2015; Pearce & Vitak, 2016). One way to build reputation that has been associated with increased social capital is the *sharing of content* on SNSs (Correa, 2015; Fu, Wu, & Cho, 2017; J. Y. Lee et al., 2016). Specifically, sharing news stories (C. S. Lee & Ma, 2012; Oeldorf-Hirsch & Sundar, 2015) or humorous content (Mikal, Rice, Kent, & Uchino, 2015) may build one's reputation, and thus social capital. Another way to build reputation on SNSs is to *respond to resource requests*, such as providing restaurant, software, or medical recommendations (Ellison, Gray, et al., 2014; Vitak, 2014).

Research Context and Questions

Armenia: A Different Capital Environment

The context of this study is Armenia. Since gaining its independence from the Soviet Union in 1991, Armenia has transitioned to, according to Freedom House (2016) a "semi-consolidated authoritarian regime" with internal instability, political strife, apathy, high out-migration, and a frozen conflict with neighboring Azerbaijan (de Waal, 2010). It also faces notable inequalities, especially economic (Falkingham, 2005; Habibov, 2012), and has consistently been ranked as a country with the highest economic inequality in the post-Communist states (Bernhard & Jung, 2017). Armenia's 2013 GINI index was .315[2] (1 expresses maximum inequality, 0 is perfect equality. OECD countries range between .24 and .49, with African countries ranking the highest with .6-.7)[3]. Another set of inequalities, often related to economic ones, are those of urban and rural. Capital city dwellers, and to a lesser extent, those in regional cities in Armenia have far greater employment and educational opportunities than rural Armenians. These educational inequalities are also intertwined with foreign language knowledge.

Like many post-Communist citizens, Armenians have low trust in institutions (McKee et al., 2013; Pearce, 2010). Extensive research finds that in cases where institutions are not trustworthy, chains of personal networks are the only reliable way to access resources and potentially enhance capital (Ledeneva, 1998). Thus Armenians rely more on each other and different social networks for resource acquisition (Aliyev, 2015). These networks are informally referred to as *KhTsB*, an acronym representing: *khnami* (in-laws), *tsanot* (friend), *barekam* (relative) (Ishkanian, 2008). Friends are of particular importance, and they usually arise from being in the same school or university cohort or perhaps a workplace. But these friendships differ from typical North American or Western European friendships, as there is a strong expectation of mutual obligation (Aliyev, 2013; Gullette, 2010; Werner, 1998a, 1998b), which helps with increasing capital and obtaining resources. When a network member needs a resource, they request help from a friend, starting a chain until someone occupying an essential position is found (Giordano, 2006). As Aliyev (2014) explains, this "system of weak extra-network ties… provide their members with public goods beyond the network's boundaries" (p. 271). But these ties, with strong expectations for mutual obligation and reciprocity, must be maintained.

Relational maintenance in such environments is important and strategic, not to mention time-consuming (Aliyev, 2013; Ledeneva, 1998; Schweers Cook, 2005; Werner, 1998a, 1998b). In such a system, *new relationships and new information* play key roles. Further, the management of one's *reputation* is of great importance in Armenia (Pearce, 2011), both culturally but also as a way to develop and maintain relations, and thus to enhance one's social capital.

Armenia has experienced substantial Internet adoption growth in a short period of time (from 22% ever used in 2009 to 68% ever used in 2015 and from 12% household PC Internet ownership in 2005 to 55% in 2015). There are, however, multiple levels of digital inequalities in Armenia. Pearce and Rice (2013) found that in 2011, Internet users were more likely than non-users to be male, younger, more educated, less worse off economically, living in an urban region, and had better English proficiency. For Internet users, there were similar divides between using PC-based Internet access, mobile phone Internet access, or both. The access device also mattered for half of the 10 Internet (not SNS-specific) activities. As in other countries, some of these digital divides are likely to decline in strength over time and with continuing adoption, while others will persist.

Because Armenia is an environment where social ties and accessing different networks are highly salient in part due to non-trustworthy institutions, and social capital so crucial, SNSs are even more important as a potential space for accessing other networks with high capital enhancement potential. Our study extends research on the use of CE online activities to the SNSs context. This study compares general use of as well as activity use on Facebook and Odnoklassniki, the two top SNSs in Armenia. This is an unusual case where two different SNSs are nearly equally popular, thus providing an opportunity for comparison.

Although initially U.S.-based, Facebook has grown in its global reach. By late 2013, about 20-25% of Armenian adults were on Facebook according to surveys and Facebook itself[4],[5]. Odnoklassniki ("classmates") is a Russian language version of Facebook, modeled to mimic the American site (Roesen & Zvereva, 2014). The two sites are not terribly dissimilar in layout, functionality, and activities available. Odnoklassniki had a live chat feature earlier than Facebook did [6] and features some elements that are reminiscent of online dating sites, like gifts of roses and star ratings for photographs [7]. While Odnoklassniki used to be the SNS of choice for the Russian speaking world, industry estimates show that it is not as popular as it once was,[8] in part because of its low social prestige (Roesen & Zvereva, 2014). Moreover, Bodrunova and Litvinenko's (2016) study of Russian social media similarly found that Facebook, versus other platforms, rose as the "online communicative milieu for the 'thinking community'" (p. 120). They also found that use of Facebook was more associated with independent and horizontal networking than other spaces which were more inter-generational and ideologically-aligned. Rogozhnikov (2014) reported that Facebook was used by Russians for weak tie relationships while other platforms were used for strong ties in Russia. Yet the site remains popular in Armenia, with more users of Odnoklassniki than Facebook at various time points[9,10].

Research Questions

Based on the above studies as well as factors of Internet use relevant to Armenia in other studies (Pearce & Rice, 2013, 2014), influences on SNS choice and activity use should include sex, age, economic wellbeing, education, urbanness, English language skills, Russian language skills, and institutional trust.

RQ1: What are the socio-demographic differences between SNS non-users, Facebook users, and Odnoklassniki users?

RQ2: What are the socio-demographic differences between, as well as the influence of SNS choice on, use of SNS activities?

Method

Respondents and Sampling

Respondents were adults from households in Armenia (N=1485) answering a face-to-face survey administered by the Caucasus Research Resource Center (CRRC) in summer of 2013. (This was a one-time survey that was part of a larger USAID media development program emphasizing media and technology use.) Participation in the survey was voluntary and anonymous. The sampling universe was all adult (age 16+) residents. The design used multistage area probability sampling. The sampling frame was divided into three "macro-strata" by settlement type: rural, regional urban city, and capital city. The secondary sampling unit was electoral districts, the third was households (via a random route method), and the final was individual respondents (the next birthday method). The response rate was 95%, so we do not weight the data. This rate is not abnormal for Armenia and the region: Most Armenians live in multigenerational households that include unmarried adults, and non-employed family members are typical, so the likelihood of someone being home is high. Indeed, the Caucasus Barometer conducted by the CRRC annually in autumn has a 70-90% response rate.

Measures

Gender. Interviewers noted if the interviewee was a man or a woman. **Age**. Respondents were asked to report their year of birth; this was transformed into age by subtracting that year from 2013. **Education.** Respondents were asked to self-report their education as one of seven levels. **Economic wellbeing.** This measure is a person's subjective assessment of their satisfaction of basic needs (Boarini & Mira d'Ercole, 2006). As explained in Pearce and Rice (2014), this is a more appropriate indicator of socioeconomic status in this context than income. Respondents were asked, What phrase best describes your family's financial situation? and given six levels. **Urbanness**. Interviewers determined if the household was located in a rural area, an urban region, or the capital. Urban regions in post-Soviet countries are settlements with more than 10,000 residents, the majority of whom are not employed in agriculture (Buckley, 1998). Thus urbanness increases from rural, to regional cities, and to the capital (see Cossman, Cossman, Cosby, & Reavis, 2008 on the rural-urban continuum). **Language**. Respondents were asked, What is your English language knowledge? And what is your Russian language knowledge? and provided four levels of expertise. **Trust in institutions**. Participants rated their trust in eight institutions (army, church, mass media, non-governmental organizations, executive power (president, government), legislative power (national assembly), judicial power/courts, and political parties (from 1=don't trust at all, 2 = don't trust, 3 = somewhat trust, 4 = trust very much). Principal components analysis grouped church and army as *non-civic institution* (eigenvalue = 1.68, variance explained = 20.9%, $\alpha = .66$) and the other six as *civic institution* (4.08, 51.0%, $\alpha = .92$).

Internet access. Respondents were asked, Have you used the Internet in the past 12 months? *Internet users only* were asked about usage frequency and activities. **SNS**. Respondents were asked "do you use social networks?" Those who answered yes were asked "which of the social networks do you use the most?" and given the options of Odnoklassniki, Facebook, Moy Mir, MySpace, LinkedIn, Hiland, Twitter, and LiveJournal. The list of SNSs was selected by the local staff of the Armenian office of the CRRC, based on their previous surveys. **SNS activities and importance**. *Activities*. Those who answered yes to using SNSs were asked "what activities do you do in social networks?" and given the choices of: communicate with friends; messaging;

post photos, video, music; play games; take quizzes; meet new people and be entertained (unfortunately combined in the survey); keep in touch with old friends; share info; get information; and satisfy freedom of expression. The list of activities was selected by the local staff of the Armenian office of the CRRC, based on their previous surveys. Thus these activities are only a small subset of the possible SNS activities. *SNS activities importance*. Finally, the survey asked those using SNSs, providing the above list of activities as possible responses, "According to you, what is the most important function of social networks?", allowing selection of just one.

Results

Sample Characteristics

As Table 1 shows, the sample was two-thirds female; evenly distributed across rural, regional urban areas, and the capital; fairly well educated; very poor in terms of economic well-bring; has minimal English expertise but better Russian language knowledge; and had low to moderate trust in institutions. Respondents were about evenly distributed between Internet users and non-users; and about a third of respondents were SNS users, of which two-thirds primarily used Odnoklassniki and one-third primarily used Facebook, with a few people primarily using other SNSs (not included in the analyses).

--- Table 1 Goes about Here ---

For SNS users, by far the most popular SNS activity was communicating with friends, followed by messaging, getting information, posting photos/video/music, playing games, keeping in touch with old friends, and sharing information. Few use SNSs for satisfying their freedom of expression or taking quizzes. The most important functions of SNSs were to keep in touch with friends (39.0%), to get information (38.6%), and to be entertained (19.7%), with no other activity receiving more than 1.3%.

Differences among non-Users, Internet Users, and SNS Users

Univariate ANOVAs were conducted to identify socio-demographic differences between non-Internet users, Internet users but non-SNS users, Odnoklassniki users, or Facebook users (Table 2, columns A, B, C, and D). All sociodemographic variables except gender and trust in civic institutions differed across at least some of the user types. In general, age and non-civic trust decreased, and education, economic wellbeing, urbanness, English proficiency, and Russian proficiency increased, as the user type changes from non-Internet users, to Facebook users. More specifically, non-Internet users, compared to Internet users who did not use SNS, were older, less educated, even worse-off economically, and had lower proficiency in English and Russian, but did not differ significantly on either type of institutional trust. Looking at differences between just the two primary SNS, Facebook users were more likely to be better educated, more urban, and have greater proficiency in both English and Russian, but again did not differ significantly on either type of institutional trust. Thus there are digital divides between Internet non-users and users, and many of those divides also characterize users of the two SNS.

--- Table 2 Goes about Here ---

Influences on Using Odnoklassniki or Facebook

Because the dependent variable of SNS use is nominal with two categorical values (the two main SNSs, with the third category of SNS non-users as the intercept), we used multinomial logistic regression to examine the simultaneous impact of the independent demographic variables on these two most frequently used SNSs. In Table 3, a significant positive coefficient and the log-odds ratio value with a 95% confidence interval above 1.0 indicate the effects of the

corresponding variable on the logarithmic likelihood of an individual's primarily using one SNS over the other. Overall, 55% of the variance was explained.

--- Table 3 Goes about Here ---

Demographic factors had considerable influence on the SNS use categories. The influences on either of the two SNSs were similar, but not exact. Users of Odnoklassniki, relative to non-SNS users, were more likely to be female, younger, have higher education, have greater economic wellbeing, less rural, and to have Russian proficiency. Facebook users, relative to non-SNS users, were more likely to be younger, have notably more education, have greater economic wellbeing, more urban, and have greater proficiency in both English and Russian. Although again lower trust in institutions (civic or non-civic) was associated with more use of either site compared to non-use, in neither case was that relationship statistically significant. Thus, Armenian adults are not divided by gender or even by trust in institutions as to whether they use either SNS or none, but are by the almost all of the other socio-demographics and language proficiency.

Influences on Social Networking Activities

Table 4 presents the binary logistic regression results for the socio-demographic and SNS influences on each of the 10 activities. Half of the regression models were non-significant (communicating with friends, post photos/video/music, take quizzes, keep in touch with old friends, and satisfy freedom of expression and desire for information). That is, there are no digital divides among users of these SNS activities. The five other activities had significant Nagelkerke R^2 ranging from .02 for posting photos, video, or music, and .03 for satisfying freedom of expression and desire for information, to .12 for getting information, .15 for meet new people and be entertained, and .17 for taking quizzes.

--- Table 4 Goes about Here ---

Each socio-demographic variable was a significant influence on at least one activity. Males were more likely to take quizzes, and more likely to meet new people and be entertained. Younger users were more likely to engage in messaging. Those with lower education were more likely to play games. Users with better economic conditions were more likely to share information and to get information. Respondents in less urban areas were more likely to use SNSs to meet people and be entertained, but less likely to share information or to get information. Better English proficiency mattered only for using SNSs for meeting new people and being entertained. Less trust in civic institutions was associated with more using SNSs to get information, while more trust in non-civic institutions was associated with more meeting new people and being entertained, and more keeping in touch with old friends. So institutional trust does not distinguish type of user, but does differ across some SNS activities.

Differences in Activity Uses between Social Networking Sites

The only mean differences in activity between Odnoklassniki and Facebook were more use of games in the first, and more getting information in the second (bottom half of Table 2). The binary logistic regression (Table 4) reinforces these two differences. Considering just the *most important* activities, cross-tabulation shows that of the Odnoklassniki users, 34.7% reported the most important function of social networks was to get information, 23.7% to be entertained, and 41.6% to keep in touch with friends. For Facebook users, the percentages were 52.1%, 12.5%, and 35.4% (x^2(2 df) = 14.2, $p < .001$, N=435). Thus Facebook users rated to get information 17.4% more important, to keep in touch 6.2% less important, and to be entertained 11.2% less important, than did Odnoklassniki users. Thus the difference in activity importance

reinforces the differences in activity usage across the two SNS. Further, it indicates differences in the three most important CE activities between the two SNS.

Discussion

There is a digital divide between non-users and users of SNSs, a modest divide between users of two primary SNSs, and a slight divide between engagement in capital-enhancing activities on the two primary SNSs, based on analysis of responses from a nationally representative sample of Armenian adults in summer 2013.

The SNS divide in Armenia has implications for reducing opportunities for the bridging type of social capital development, which provides the greatest opportunities for reducing inequalities (Gonzales, 2015). As Liewrouw (2001) argues, the generation, circulation, and use of information in a society can create different information environments through fragmentation, with negative effects (Dahlberg, 2007). When elites, with greater resources, are in one space and non-elites are in another, differential use of SNSs can further divide individuals rather than reduce barriers which can provide opportunities for capital enhancement. To some extent, this is what seems to be occurring in Armenia.

In terms of the usage gap, less elite Armenians on both SNSs are less likely to engage in CE (as they may affect relational management, reputation building, and access to new people and information) activities: messaging, playing games, meeting new people, and sharing and receiving information. However, we find very little difference in use of SNS activities between the two sites, except that Odnoklassniki is also associated more with playing games (presumably less capital-enhancing as entertainment, but possibly more to the extent it provides a venue for expanding one's network), while Facebook is associated more with getting information (presumably more capital-enhancing in general).

The differences that do exist here could certainly be explained by other factors. Unfortunately, this particular survey did not ask about multiple SNS site use, merely the most used site. Thus, to the extent that individuals may use more than one site, the overall effects of differing capital-enhancing activities by platform are confounded and understated. Odnoklassniki was free on certain mobile providers, thus increasing the likelihood of use by those more economically constrained (indeed, economic wellbeing was positively associated with use of both SNSs). An additional limitation is that the sample included only those at least 16 years old, yet adolescents are heavier users of SNSs[11,12]. The SNS activities in this survey do not exhaust the possibilities, and even within an SNS the use and popularity of an activity may change over time (as van Deursen, van Dijk, and ten Klooster, 2015, found concerning Dutch users of Internet activities in 2010 through 2013). In addition, there may be other SNSs where users are engaging in particular activities; for example, WhatsApp or SMS may be used for messaging while Instagram or SnapChat may be used for sharing photographs. Users do not typically limit themselves to just one SNS, although this survey asked about the primary SNS. Understanding primary and additional frequently used SNSs would be informative.

More generally, to the extent that a given SNS replicates one's pre-existing social networks (here, Facebook or Odnoklassniki), and thus influences one's choice of a particular SNS, the importance of a particular platform for accessing resources may be overstated. Conversely, a given site may have different features and different populations of users, thus affecting the capital-enhancing potential of relational development and maintenance. The association between existing networks, type of platform, and subsequent network resources, may reinforce initial differences in social capital. Finally, future studies could overcome the major limitations here: although the review of prior literature provides many justifications for

associating kinds of capital enhancement with specific SNS activities, this study does not measure either general or specific forms of capital enhancement, nor how those foster bridging and/or bonding social capital, nor users' social networks that might reflect changes in social capital. Along with the relatively low levels of SNS use overall, this means that any implications for changes in inequality related to changes in CE in this study are speculative.

Conclusion

Despite the promises of a digital public sphere (Castells, 2008; Papacharissi, 2009), divides persist across the Internet, SNSs, and digital activities. Yet it was promising to see that once on either SNS, users generally engaged in similar activities. However, they did not engage in these activities with those not part of their own sociodemographic profile, reducing opportunities for bridging social capital. Nonetheless, our more inclusive conceptualization of capital enhancement allows for broader thinking about the potential of digital spaces as opportunity providers. Finally, despite trust in institutions only having a minor role in distinguishing non-users from users and for some activities, extending consideration for the broader political environment in which individuals exist is an important step in understanding more subtle digital divides.

Notes

[1] Another third level divide is the participation divide, not explored in the current study, which considers the socioeconomic divides in digital content creation (Hoffmann, Lutz, & Meckel, 2015; Schradie, 2013). Also notable is the idea of "meaningful connectivity" where individuals possess the skills to engage with technology to be able to address everyday goals and concerns (Katz & Gonzalez, 2016).

[2] http://data.worldbank.org/indicator/SI.POV.GINI?locations=AM

[3] https://en.wikipedia.org/wiki/Gini_coefficient

[4] http://www.katypearce.net/facebook-in-armenia-azerbaijan-and-georgia/

[5] http://www.katypearce.net/march-2014-facebook-ad-suggestions-at-facebook-use-in-armenia-azerbaijan-and-georgia/

[6] http://journalistuss.wordpress.com/2009/11/27/odnoklassniki-vs-facebook/

[7] http://www.dreamgrow.com/social-media-in-russia/

[8] http://vincos.it/world-map-of-social-networks/

[9] http://www.banman.am/2016/01/social-networks-in-armenia-jan-2015.html

[10] http://www.banman.am/2013/12/social-media-in-armenia-december-2013.html

[11] http://www.katypearce.net/march-2014-facebook-ad-suggestions-at-facebook-use-in-armenia-azerbaijan-and-georgia/

[12] http://www.katypearce.net/facebook-in-armenia-march-2016/

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Table 1
Descriptive Statistics

Variable	Responses	Descriptives
Age		*M* = 47.8 *SD* = 18.54 R =16-96
Gender	0 Male	33.7%
	1 Female	66.3
		M = .66 *SD* = .47
Urbanness	0 Rural	33.4%
	1 Urban	32.7
	2 Capital	33.9
		M = 1.01 *SD* = .82
Education	1 primary education	1.2%
	2 Incomplete secondary education	11.5
	3 Completed secondary education	35.9
	4 Secondary technical education	24.4
	5 Incomplete higher education	4.3
	6 Completed higher education	22.1
	7 Post-graduate	.6
		M = 3.88 *SD* = 1.38
Best description of family's financial situation (economic wellbeing)		
	1 We don't have enough money even for food	26.0%
	2 We have enough money for food but not clothes	31.1
	3 We can buy food & clothes, but not more expensive things	33.8
	4 We can buy some expensive things like a fridge	6.3
	5 We can afford expensive goods, vacation, car, but not to buy an apartment	2.5
	6 We can buy an apartment	.3
		M = 2.29 *SD* = 1.02
English proficiency knowledge	1 no basic	62.1%
	2 beginning	19.6
	3 intermediate	14.5
	4 advanced	3.7
		M = 1.60 *SD* = .87
Russian proficiency knowledge	1 no basic	6.1%
	2 beginning	13.2
	3 intermediate	51.0
	4 advanced	29.7
		M = 3.04 *SD* = .82

Trust in institution (1=don't trust at all, 2 = don't trust, 3 = somewhat trust, 4 = trust very much)		
Army		*M* = 3.4 *SD* = .87
Church		*M* = 3.3 *SD* = .92
Non-civic institution α = .66		*M = 3.31 SD = .77*
Mass media		*M* = 2.4 *SD* = .84
Non-governmental organizations		*M* = 2.3 *SD* = .92
Executive power (president, government)		*M* = 2.1 *SD* = .95
Legislative power (national assembly)		*M* = 2.0 *SD* = .93
Judicial power/courts		*M* = 2.0 *SD* = .95
Political parties		*M* = 1.9 *SD* = .88
Civic institution α = .92		*M = 2.14 SD = .76*
Of total, Use Internet in past 12 months yes	0 no, 1	46.8%
Of total, Use any SNS yes	0 no, 1	32.6
SNS most frequently used: Odnoklassniki		21.3%
	Facebook	10.8
	Moy Mir	0.2
	MySpace	0.2
	Twitter	0.1
	Other	0.1
Of SNS users, use activities	0 no, 1 yes	
	Communicate with friends	91.0%
	Messaging	55.5
	Post photos, video, music	41.2
	Play games	37.9
	Take quizzes	2.9
	Meet new people and be entertained	13.4
	Keep in touch with old friends	32.7
	Share info	31.8
	Get info	55.2
	Satisfy freedom of expression and desire for information	4.4

N = 1400

Table 2
Means, SDs, and Anova Tests Comparing Demographics and Activities across User Types

	A	B	C	D	
Measures	**Non – Internet (N=745)**	**Internet users, non SNS users (N=207)**	**Odnok-lassniki users (N=298)**	**Facebook users (N=151)**	***F*, partial *eta*^{2}**
Demographics					
Age	56.1 c	48.8 b	32.6 a	33.1 a	271.1 ***
	16.9	15.0	11.6	13.8	.32
Gender	.68 a	.64 a	.61 a	.71 a	2.1 ns
(0 M 1 F)	.47	.48	.49	.46	.005
Education	3.4 a	4.2 b	4.1b	5.2 c	93.6 ***
(1-7)	1.2	1.3	1.3	1.3	.17
Economic wellbeing	2.0 a	2.5 b	2.7 c	2.9 c	76.0 ***
(1-6)	.92	.95	.98	.99	.14
Urban	.86 a	1.1 b	1.1 ab	1.4 c	24.2 ***
(0-2)	.80	.79	.82	.76	.05
English	1.3 a	1.7 b	1.9 c	2.6 d	148.4 ***
(1-4)	.58	.87	.91	1.0	.24
Russian	2.8 a	3.3 b	3.2 b	3.5 c	49.3 ***
(1-4)	.87	.68	.68	.56	.10
Trust, Civic	2.14 a	2.13 a	2.16 a	2.09 a	.28 ns
(1-4)	.77	.76	.75	.76	.001
Trust, NonCivic	3.39 b	3.23 ab	3.27 ab	3.11 a	6.9 ***
(1-4)	.72	.78	.76	.96	.02
Activities, SNS Users					
Communicate with	--	--	.92	.91	.22
friends			.27	.29	.00
Messaging	--	--	.53	.62	3.42
			.50	.49	.01
Post photos, video,	--	--	.41	.43	.29
music			.46	.50	.00
Play games	--	--	.44 a	.26 b	15.55 ***
			.50	.44	.03
Take quizzes	--	--	.03	.03	.15
			.15	.18	.00
Meet new people and	--	--	.14	.13	.16
be entertained			.35	.34	.00
Keep in touch with	--	--	.33	.31	.27
old friends			.47	.46	.00
Share info	--	--	.31	.36	.95
			.46	.48	.00
Get info	--	--	.50 a	.63 b	12.80 ***
			.50	.48	.03

Satisfy freedom of expression and desire for information	--	--	.04 .20	.05 .23	.52 .00

* p <.05; ** p < .01; *** p <.001

Cell values for columns A-D are means and standard deviations. Cell values for the final column are *F*-ratios and partial etas.

a, b, c: means with same letters are not significantly different, based on Scheffe pairwise comparisons.

Table 3
Multinomial Logistic Regression on Use of the Two Armenian Main Social Networking Sites, with SNS Non-User As a Reference Category

	Odnoklassniki			**Facebook**		
Explanatory Variables	**B (SE)**	**Wald**	**Odds ratio (95% CI)**	**B (SE)**	**Wald**	**Odds ratio (95% CI)**
Gender (male)	.47 (.18) **	6.5	1.58 (1.11-2.24)	.14 (.25)	.31	1.15 (.70-1.90)
Age	-.10 (.01) ***	196.2	.90 (.89-.92)	-.11 (.01) ***	110.5	.90 (.88–.92)
Education	.27 (.08) ***	14.3	1.33 (1.15-1.55)	.70 (.10) ***	47.2	2.01 (1.65-2.45)
Economic wellbeing	.28 (.09) **	9.3	1.30 (1.10-1.57)	.32 (.12) **	6.7	1.380 (1.08-1.76)
Urbanness (rural)	-.55 (.22) **	6.2	.58 (.38-.89)	-1.41 (.32) ***	19.6	.24 (.13-.46)
Urbanness (regional city)	-.33 (.22)	2.3	.72 (.47-1.1)	-1.13 (.29) ***	15.4	.32 (.18-.57)
English	.12 (.11)	1.2	1.13 (.91-1.41)	.61 (.14) ***	19.8	1.84 (1.41-2.41)
Russian	.39 (.14) **	7.5	1.47 (1.11-1.94)	.62 (.22) **	7.7	1.86 (1.20-2.87)
Trust Civic	-.20 (.13)	2.4	.82 (.64-1.05)	-.25 (.18)	1.9	.78 (.55-1.11)
Trust NonCivic	-.11 (.12)	.86	.90 (.72-1.13)	-.21 (.16)	1.9	.81 (.60-1.10)
Constant	.87 (.65)	1.8	--	-2.5 (.95) **	7.0	--
Pseudo R2	.55					
Nagelkerke Chi-square (df = 20)	793.5 ***					

* p <.05, ** p < .01, *** p < .001
Values are unstandardized beta coefficients and (standard error).
Overall reference category is Non-SNS user.

Table 4
Binary Logistic Regression of Socio-demographics and SNS Use on SNS Activities

	SNS Activities									
Explanatory Variables	**Comm with friends**	**Mess-aging**	**Post photos, video, music**	**Play games**	**Take quizzes**	**Meet new people and be enter-tained**	**Keep in touch with old friends**	**Share info**	**Get info**	**Satisfy freedom of express and desire for info**
Block 1										
Gender	.13	.19	.27	-.34	-.17	-.62	.15	-.24	-.12	-.36
(Fem = 1)	(.38)	(.21)	(.21)	(.22)	(.65) **	(.31) *	(.22)	(.22)	(.22)	(.49)
Age	-.02	-.02	-.01	-.01	.02	-.02	.01	-.02	.00	-.02
	(.02)	(.01) *	(.01)	(.01)	(.03)	(.02)	(.01)	(.01)	(.01)	(.02)
Education	-.16	-.10	-.02	-.17	-.39	-.16	.09	-.05	-.03	.00
	(.16)	(.09)	(.08)	(.09) *	(.24)	(.12)	(.09)	(.09)	(.09)	(.20)
Economic	.08	.18	.12	.12	-.43	-.15	.14	.24	.32	.04
wellbeing	(.20)	(.11)	(.11)	(.11)	(.32)	(.16)	(.11)	(.12) *	(.11) **	(.25)
Urbanness	-.30	-.10	.01	.14	-.16	-.65	-.18	.38	.33	-.23
	(.25)	(.13)	(.13)	(.14)	(.41)	(.20) ***	(.14)	(.15) **	(.14) *	(.31)
English	-.03	.02	.05	.23	.43	.49	.19	-.03	-.13	.24
	(.22)	(.12)	(.12)	(.13)	(.37)	(.19) **	(.13)	(.13)	(.13)	(.29)
Russian	.08	.37	.11	.09	.53	-.09	.07	.01	.16	.21
	(.33)	(.18) *	(.18)	(.19)	(.56)	(.26)	(.19)	(.20)	(.18)	(.45)
Trust Civic	-.07	-.21	-.04	-.02	-.58	-.39	-.29	-.22	-.41	-.10
	(.28)	(.15)	(.15)	(.16)	(.45)	(.22)	(.16)	(.16)	(.16) **	(.37)
Trust	.22	.06	.02	-.12	.88	.79	.41	.05	.26	-.24
NonCivic	(.23)	(.13)	(.13)	(.14)	(.49)	(.25) **	(.15) **	(.14)	(.14)	(.30)
Block 2										
(Odno= 0,	.24	.29	-.03	-1.0	.69	.19	-.37	.14	.77	.17
Face = 1)	(.42)	(.24)	(.23)	(.26) ***	(.72)	(.36)	(.25)	(.25)	(.25) **	(.55)

Constant	3.53 (1.4) **	-.11 (.78)	-.84 (.78)	.25 (.81)	-5.3 (2.6) *	-2.0 (1.2)	-2.8 (.86)	-.75 (.85)	-1.3 (.80)	-2.6 (1.8)
Chi-square (df = 10)	7.6	19.9 *	6.9	30.9 ***	17.7	37.4 ***	18.1	17.7	39.6 ***	4.4
Pseudo R2 Nagelkerke	.04	.06	.02	.10	.17	.15	.06	.06	.12	.03
% correct	91.8	60.9	58.3	64.4	97.0	86.2	67.7	69.1	61.6	95.6

* p <.05; ** p <.01; *** p <.001

Values are unstandardized beta coefficients and (standard error).