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To cite this article: Stephen A. Rains & Eric Tsetsi (2016): Social support and digital inequality: Does Internet use magnify or mitigate traditional inequities in support availability?, Communication Monographs, DOI: [10.1080/03637751.2016.1228252](https://doi.org/10.1080/03637751.2016.1228252)

To link to this article: <http://dx.doi.org/10.1080/03637751.2016.1228252>



Published online: 09 Sep 2016.



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## Social support and digital inequality: Does Internet use magnify or mitigate traditional inequities in support availability?

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### ABSTRACT

This study tested competing predictions about the implications of Internet use for traditional inequities in social support availability. Using survey data collected as part of the Pew Internet and American Life Project, inequities in social support availability stemming from demographic and network-related factors were examined among non-users, Internet users, and Internet users who also participated in a social network site (SNS). The results offered evidence consistent with the social compensation perspective. Traditional inequities in support availability related to age, race, and total network size persisted among respondents who did not use the Internet, but were less evident or absent among Internet users and/or Internet users who participated in an SNS. Using the Internet to connect with others appeared to be an important mechanism through which inequality in support availability was mitigated.

### ARTICLE HISTORY

Received 5 February 2016

Accepted 2 August 2016

### KEYWORDS

Internet use; social support; Internet access; digital inequality; Internet non-users; social compensation; social enhancement; social media

The implications of Internet use for acquiring and sharing social resources has been a longstanding topic of interest transcending several disciplines (Katz & Rice, 2002; Rainie & Wellman, 2012; Sproull & Kiesler, 1991). The Internet has been variously discussed as a means for the disadvantaged to overcome social resource deficits as well as for the advantaged to further increase their resource wealth (Chen & Wellman, 2005; DiMaggio, Hargittai, Neuman, & Robinson, 2001; Kraut et al., 2002; van Dijk, 2005). In the present project, this issue was examined in the context of social support – a resource that is critical for coping with a wide range of stressors and inextricably linked with well-being (Cohen, Underwood, & Gottlieb, 2000; Goldsmith, 2004; Uchino, 2004). Competing hypotheses drawn from the social enhancement (i.e., “rich get richer”) and social compensation (i.e., “poor get richer”) perspectives are tested to determine whether traditional inequities in support availability stemming from specific demographic characteristics and network-related factors (i.e., marital status, core network size, total network size) are magnified or mitigated by Internet use. Internet users and non-users are examined along with a third group consisting of Internet users who actively participate in a social network site (SNS).

The current project advances research and theory on digital inequality and social support in several important ways. It involves a novel test designed to evaluate the consequences of Internet access and use for traditional inequities in social support. Through examining how the associations between demographic and network-related factors and support availability vary among Internet users and non-users, this project makes it possible to determine the degree to which traditional inequities in support are intensified or reduced by Internet use. Moreover, in distinguishing Internet users who do and do not regularly use SNSs, it is possible to directly evaluate the impact of using the Internet specifically to connect with others on inequities in support availability. This project contributes to social support scholarship by offering insights about the implications of Internet use for support availability. The results help to better understand who accrues the greatest support-related benefits of Internet use and offer insights into why such effects occur.

### **Internet and social support**

Social support is an umbrella term that, at its most general level, involves the connection between one's social relationships and well-being (Cohen, Gottlieb, & Underwood, 2000). Social support availability refers to the perception that one has access to others who, if necessary, could be called on for assistance (Helgeson, 1993). Although support availability may take several specific forms, three are particularly important: emotional support, informational support, and tangible support. Whereas emotional support involves perceptions that others are available to provide comfort and empathy, informational support concerns advice and guidance, and tangible support consists of physical assistance (e.g., help with housework). Support availability is thought to function by impacting one's appraisals of and responses to stressors (Lakey & Cohen, 2000). Because others are perceived to be available for assistance in managing a stressor, the stressor is appraised to be less threatening and/or one's coping resources are evaluated to be more sufficient. Indeed, robust evidence shows that support availability is linked with a range of positive outcomes associated with well-being (Gruenewald & Seeman, 2010; Holt-Lunstad, Smith, & Layton, 2010; Uchino, 2004) – and this extends to support available online (Rains & Wright, 2016).

Despite its benefits, there is evidence of systematic differences in support availability based on demographic and network-related factors. Several surveys with nationally representative samples indicate that demographic variables including age, sex, race, and education are correlated with support availability perceptions (Bertera, 2005; Moak & Agrawal, 2010; Shaw, 2005; Shaw, Krause, Chatters, Connell, & Ingersoll-Dayton, 2004; Wethington & Kessler, 1986). These surveys have demonstrated that women and White Americans, as well as those who are older and have greater education, report greater levels of support availability. Beyond demographic factors, the nature of one's social network is also consequential. Being married or living with a partner (Lin, Ye, & Ensel, 1999; Shaw, 2005) and having a larger social network (Nabi, Prestin, & So, 2013; Seeman & Berkman, 1988; Zhu, Woo, Porter, & Brzezinski, 2013) have been associated with greater perceptions of support availability.

Although inequity exists in support availability, there is reason to believe that the Internet can be a valuable support resource. A number of scholars have argued that Internet access

and use can serve to reinforce one's existing relationships with strong ties such as family and friends (Amichai-Hamburger & Hayat, 2011; Mikal, Rice, Abeyta, & DeVilbiss, 2013; Wellman, Boase, & Chen, 2002; Zhao, 2006) and provide access to novel support resources such as weak ties (Tanis, 2008; Turner, Grube, & Meyers, 2001; Wright & Bell, 2003). Indeed, there is evidence that Internet users perceive greater levels of support available than non-users (Hampton, Goulet, Rainie, & Purcell, 2011). Researchers have also reported positive associations between support availability and general Internet use (Park, 2012) as well as the use of specific technologies such as SNSs (Liu & Yu, 2013; Mahapatra & Schatz, 2015), online communities (Oh & Lee, 2012), blogs (Rains & Keating, 2011), and massively multiplayer online games (MMOGs; Kaczmarek & Krazkowski, 2014). These findings are consistent with the notion that Internet use can provide increased access to social interaction with others and thereby reinforce and expand one's pool of potential support providers. Yet, questions remain about the scope of these benefits – and whether some groups benefit more than others. Does Internet use serve to mitigate or magnify existing inequalities in support availability stemming from demographic and network-related factors? Answering this question is essential to fully understand the implications of Internet access and use for social support.

## ***Understanding the support-related implications of Internet use***

### ***The case for social enhancement***

One possibility, which will be referred to as the social enhancement perspective (Kraut et al., 2002), is that people who have greater existing support resources reap the most support-related benefits from using the Internet. Individuals who are traditionally advantaged in terms of demographic and network-related factors maximize their available resources and disproportionately benefit from Internet use. The social enhancement perspective is rooted in broader claims about the “Mathew effect” (Merton, 1968) related to digital inequality (Chen & Wellman, 2005; Hargittai, 2003), which suggests that those who are resource rich most benefit from using the Internet. Although social support was not explicitly examined, several studies have shown that individuals who are traditionally advantaged in terms of factors like education or race tend to use the Internet differently and/or experience greater benefits from their use (Hargittai & Hinnant, 2008; Pearce & Rice, 2013; Zillen & Hargittai, 2009).

In the context of social support, social enhancement involves individuals who are already advantaged using the Internet more effectively to maintain and create social connections (Kraut et al., 2002). Internet access and use can help reinforce one's existing relationships with family and friends (Amichai-Hamburger & Hayat, 2011; Mikal et al., 2013; Wellman et al., 2002; Zhao, 2006) and provide access to weak ties (Tanis, 2008; Turner et al., 2001; Wright & Bell, 2003). Weak ties are defined as people who are not interpersonally close but from whom one can acquire assistance (Granovetter, 1973). Several scholars have argued that gaining access to weak ties is a key benefit of support-related Internet use (Tanis, 2008; Wright & Bell, 2003). Social enhancement may occur as those who are traditionally advantaged in terms of support maximize their existing relationships with strong ties and expand their weak-tie connections.

Because people who are advantaged have a robust network of close relationships and weak ties in place, Internet use – particularly use that involves connecting with others

such as participating in an SNS – might allow them to multiply their already substantial available support resources with relatively little effort. Evidence for this idea can be found in one of the earliest studies examining support availability and Internet use. Kraut and colleagues conducted a longitudinal survey and reported that the impact of Internet use on family interaction depended upon participants' support availability (Kraut et al., 2002). Among those who initially reported higher levels of support availability, Internet use was associated with increased family interaction. Other researchers examining use of health-related online support communities have found positive associations between support available from friends/family and community evaluations (Ruppel & McKinley, 2015) as well as between cohesive family relationships and support community use (Yoo et al., 2014). Taken together, the results from the preceding studies suggest the potential for those who are most advantaged in support availability to reap the greatest support-related benefits from Internet use.

### *The case for social compensation*

A second possibility is that Internet use most benefits people who traditionally face inequalities in support availability. The social compensation perspective (Kraut et al., 2002) suggests that individuals who have fewer existing support resources experience the greatest support-related benefits of Internet use. One key way that Internet use is proposed to be beneficial is by making it possible to expand access to weak ties (Tanis, 2008; Turner et al., 2001; Wright & Bell, 2003). In their application of the optimal matching model (Cutrona, 1990; Cutrona & Russell, 1990) to the context of online social support, Turner and colleagues' (2001) argued that Internet use might make it possible for people coping with uncontrollable events (e.g., illness) to gain access to weak ties who can meet their unique needs. A second way that Internet use might be valuable to people who are traditionally disadvantaged is by making it possible to reinforce existing connections with strong ties such as family and friends (Amichai-Hamburger & Hayat, 2011; Mikal et al., 2013; Wellman et al., 2002; Zhao, 2006).

Through providing opportunities to strengthen relationships with strong ties and expanding access to weak ties, Internet use may be particularly beneficial to people who are traditionally disadvantaged in support availability. Social compensation may occur because those who are traditionally disadvantaged are motivated to remedy their support deficits. Relative to those who have greater support resources, people who perceive themselves to be lacking in support might be more likely to take action to strengthen their existing connections. Research on information seeking suggests that traditionally disadvantaged groups can be especially reliant on family and kin relationships (Chatman, 1991). Internet use and, in particular, technologies like SNSs may represent a legitimate means to reinforce strong-tie support resources. It is also possible that people who are traditionally disadvantaged in terms of support may be motivated to make new connections and expand their weak-tie networks. Consistent with this notion, researchers have shown that individuals who lacked support offline were more likely to participate in online communities (Kim et al., 2011) and MMOGs (Kaczmarek & Krazkowski, 2014) and benefit from support available from their blog readers (Rains & Keating, 2011). The results from these studies indicate that social compensation may occur as people who are disadvantaged in terms of support availability most benefit from Internet use.

### ***Testing social enhancement and compensation***

The social enhancement and compensation perspectives suggest competing predictions about the implications of Internet use for existing inequalities in social support availability. Although prior research has offered some evidence generally consistent with both perspectives, inequities in support availability have rarely been examined directly and few attempts have been made to isolate the support-related implications of Internet use by comparing Internet users with non-users. These issues have been addressed in this project in an effort to test whether Internet use mitigates or magnifies inequalities in support availability stemming from demographic and network-related factors.

In addition to evaluating support availability as an outcome variable, Internet users were compared with non-users and a third group consisting of Internet users who also participated in an SNS. Distinguishing Internet users and from Internet plus SNS users made it possible to more directly test our argument about the implications of Internet use for connecting with others. Although the Internet offers many avenues to interact with strong and weak ties (e.g., e-mail, instant messaging, discussion communities), they represent only a fraction of the activities that might be pursued online (e.g., shopping and watching movies). Yet, interacting with strong and weak ties is central to SNS use. Researchers studying the composition of SNS users' networks have found that such networks were generally more heterogeneous than traditional offline networks (Rainie & Wellman, 2012). A typical SNS user's network consists of friends and family as well as others with whom the user does not share a close relationship and could be considered weak ties (Hampton et al., 2011; Manago, Taylor, & Greenfield, 2012). If using the Internet to connect with others is responsible for social enhancement or compensation, then SNS users should experience different outcomes relative to individuals who use the Internet but are not regular SNS users and those who do not use the Internet.

Existing inequities in support availability stemming from demographic and network-related factors provide a context for testing the social enhancement and compensation perspectives. Four demographic (age, sex, race, education) and three network-related (marital status, core network size, total network size) factors have been consistently correlated with support availability in previous research. Support availability typically has been greater among adults who are older, female, White, more educated, married, and have a larger social network (Bertera, 2005, Lin et al., 1999; Moak & Agrawal, 2010; Nabi et al., 2013; Shaw, 2005; Shaw et al., 2004; Seeman & Berkman, 1988; Wethington & Kessler, 1986; Zhu et al., 2013). These demographic and network-related factors make it possible to examine how existing inequalities in support availability change as a function of Internet use. Knowing, for example, that support availability is positively associated with education or network size makes it also possible to determine if and how these basic relationships vary by Internet user status.

If social enhancement occurs and Internet use serves to disproportionately benefit those who have more resources, then the relationships between these factors and support availability should be magnified among Internet users and, furthermore, SNS users compared to individuals who do not use the Internet. Among non-Internet users, for example, people with larger core networks would be expected to report higher levels of support availability than people with smaller core networks. However, the benefits of a large core network should be amplified among Internet users. Relative to Internet users who have smaller core networks, users with larger core networks should report disproportionately higher levels of

support availability. In statistical terms, this should be manifested in a stronger positive correlation between these two variables among Internet users than non-users, and the strongest correlation should be observed among Internet users who also participate in an SNS.

Hypothesis 1: Stronger positive associations between perceived support availability and (a) age, (b) sex, (c) education, and (d) race will be observed among Internet users than non-users; the strongest positive associations will be observed among Internet users who participate in an SNS.

Hypothesis 2: Stronger positive associations between perceived support availability and (a) marital status, (b) total network size, and (c) core network size will be observed among Internet users than non-users; the strongest positive associations will be observed among Internet users who participate in an SNS.

If social compensation occurs, then relationships between support availability and the demographic and network-related factors should be mitigated among Internet users. Through using the Internet and SNSs, individuals who are traditionally disadvantaged in support will be better able to overcome such limitations. Among non-users, for example, core network size should be positively associated with support availability. As one's core network increases, so too should one's available support. Among Internet users, however, those who have smaller core networks should reap disproportionately greater benefits from Internet use than Internet users who have larger core networks. As a result, Internet users with smaller core networks should have support availability scores that are disproportionately higher (though not necessarily higher in absolute terms) relative to Internet users with larger core networks. Because those who have a smaller social network experience disproportionately greater benefits, an increase in core network size may not result in much or any increase in support availability. This trend should result in the positive associations between demographic and network-related factors and support availability observed among non-users being weaker – or even reversed – among Internet users and weakest or most negative among SNS users.

Hypothesis 3: Weaker positive associations between perceived support availability and (a) age, (b) sex, (c) education, and (d) race will be observed among Internet users than non-users; the weakest positive or most negative associations will be observed among Internet users who participate in an SNS.

Hypothesis 4: Weaker positive associations between perceived support availability and (a) marital status, (b) total network size, and (c) core network size will be observed among Internet users than non-users; the weakest positive or most negative associations will be observed among Internet users who participate in an SNS.

## Method

### *Data and participants*

Data collected by a professional research firm on behalf of researchers at the Pew Internet and American Life Project (2010) were used to test the hypotheses. Telephone interviews were conducted with 2255 adults during October and November of 2010 to explore adult Americans' perceptions and use of the Internet. Random-digit dialing was used to identify potential respondents and the final sample was weighted to reflect the population of adult

Americans. Hampton and colleagues (2011) provide a detailed description of the sampling and weighting procedures.

Respondents were slightly more likely to be female (53.8%,  $n = 1214$ ) and, on average, were 54 years old ( $M = 54.06$ ,  $SD = 18.77$ ). In terms of race, most respondents were White (82.4%) followed by Black or African American (8.6%), two or more races (2.2%), and Asian or Pacific Islander (2.0%). Over one-third of the respondents (38.8%) had completed college or greater education.

## Measures

### Social support availability

Twelve items from the medical outcomes survey social support survey (Sherbourne & Stewart, 1991) were used to evaluate support availability. Respondents completed four items for each of three different types of support availability: emotional (e.g., “Someone you can count on to listen when you need to talk.”), informational (e.g., “Someone to give you good advice about a crisis.”), and tangible (e.g., “Someone to help you if you were confined to bed.”). All items were rated on a 5-point scale with the anchors *none of the time* (1) and *most of the time* (5); larger scores indicate that respondents perceived more support available. The mean score for the subscales evaluating *emotional support* ( $M = 4.04$ ,  $SD = 0.91$ ,  $\alpha = .87$ ), *informational support* ( $M = 3.98$ ,  $SD = 0.87$ ,  $\alpha = .86$ ), and *tangible support* ( $M = 4.05$ ,  $SD = 1.00$ ,  $\alpha = .88$ ) were computed along with an aggregate measure of *support availability* for all 12 items ( $M = 4.03$ ,  $SD = 0.79$ ,  $\alpha = .93$ ). Each subscale was examined independently in the analyses along with the overall support availability measure. Although the correlations among the three subscales were large (range:  $r = .62$  to  $.82$ ), there was enough unshared variance to warrant evaluating the subscales separately. Moreover, such an approach made it possible to examine (in)consistencies in the results across support subscales.

### Internet use

Respondents were asked to report whether they used the Internet at least occasionally. Individuals who indicated not using the Internet were segmented into the non-user group ( $n = 484$ ). Individuals who indicated using the Internet were further segmented based on how frequently they reported using the SNS brands Facebook and MySpace. Respondents who indicated using either site at least once a week or more frequently were segmented into the SNS group ( $n = 822$ ). One use per week was chosen as the minimum requirement in an effort to isolate those respondents who were regular users of this technology. Respondents who indicated not using either site or using both sites less than once per week were segmented into the Internet user group ( $n = 948$ ).

### Network-related factors

A dichotomous measure of respondents’ *marital status* was constructed based on their response to a single item. Respondents were asked to report whether they were currently married, living with a partner, divorced, separated, widowed, or never married. Respondents who indicated being currently married or living with a partner were categorized as being married ( $n = 1383$ ) and assigned a value of 1; respondents who indicating



being never married, divorced, separated, or widowed ( $n = 850$ ) were categorized into the not married group and assigned a value of 0.

Respondents' core network size was evaluated using the name generator approach from the General Social Survey (Marsden, 1987). Respondents were asked to report who they have discussed important matters with during the previous six months. After identifying the first name or initials of the first confidant, respondents were asked if there was anyone else. Following standard protocol for this approach, up to five names were recorded. The total number of confidants listed by respondents was computed to identify their *core network size* ( $M = 2.15$ ,  $SD = 1.33$ ).

The total size of respondents' social network was determined using the scale-up method of social network analysis (McCarty, Killworth, Bernard, Johnsen, & Shelley, 2001). For a series of 12 first names (e.g., Walter, Rose, Bruce, Tina) developed in previous research (McCormick, Salganik, & Zheng, 2010), respondents were asked to indicate how many people they know with each first name. The scale-up method involves using the number of people a respondent knows with each name along with the prevalence of each name among the American population to estimate the total size of a respondent's social network. It has been shown to produce valid and reliable estimates of network size (McCarty et al., 2001). The *total network size* for participants in the sample, on average, was 643 people ( $SD = 665.88$ ). One outlier who exceeded the mean total network size by more than 45 standard deviations was excluded from the analyses.

### *Demographic characteristics*

Respondents were asked to report their *sex*, *age*, *race*, and *education*. Descriptive information for these variables was provided in describing the sample. For *race*, Whites ( $n = 1857$ ; 82.4%) were coded as 1 and all other races ( $n = 330$ ; 14.6%) were coded as 0. *Education* was evaluated by asking respondents to report the last grade or class they completed in school. Respondents were grouped into one of seven categories ranging from *none or grades 1–8* (1) to *post-graduate training/professional school after college* (7) ( $M = 4.80$ ,  $SD = 1.64$ ).

## **Results**

### *Preliminary analyses*

Prior to testing the hypotheses, preliminary analyses were conducted. First, the data set was examined for missing data. A maximum of 3% of the cases contained missing data for one or more of the variables examined in this project. Second, the arguments proposed in this project assumed that Internet users should generally report higher levels of support availability than non-users and those who used the Internet plus an SNS should report the highest levels of support availability. An analysis of variance (ANOVA) showed an omnibus difference in overall support availability between the three groups,  $F(2, 2248) = 48.97$ ,  $p < .001$ ,  $\eta^2 = .04$ . Post-hoc pairwise comparisons indicated that all three groups were significantly different from one another. Consistent with expectations, Internet users who participated in an SNS ( $M = 4.19$ ,  $SD = 0.68$ ) reported the highest level of overall support availability, followed by Internet users who did not use an SNS ( $M = 4.03$ ,  $SD = 0.79$ ), and respondents who did not use the Internet ( $M = 3.74$ ,  $SD = 0.93$ ).

## **Primary analyses**

A series of four regression models were constructed in order to test the hypotheses. The models were identical, with the exception of the outcome variable. In addition to examining overall support availability perceptions aggregated across the three support types (i.e., emotional, informational, and tangible), each support type was evaluated individually. Because the Internet use variable had three levels (i.e., non-users, Internet users, Internet and SNS users), two dummy-coded variables were created. Given the study hypotheses, respondents who used the Internet but not an SNS were selected as the reference group. The two dummy-coded variables reflected the difference between the reference group and Internet users who were members of an SNS (i.e., Internet plus SNS) as well as non-users (i.e., no Internet).

Following Aiken and West's (1991) recommendations for testing interaction effects in regression, the variables were entered in blocks. The four demographic variables (i.e., sex, age, race, education) were entered in the first block. The three network-related variables (i.e., marital status, total network size, core network size) were entered in the second block. The two dummy-coded variables reflecting the three conditions for the Internet use variable were entered in the third block. The fourth block consisted of the interactions between the two dummy-coded variables and the four demographic variables. The fifth block included the interactions between the two dummy-coded variables and the three network-related variables. All variables in blocks one and two were mean centered prior to computing the interaction terms (Aiken & West, 1991). For reference, a statistically significant interaction between one of the dummy-coded variables and a demographic or network-related factor indicated that the slopes for the demographic or network-related factors and support availability were significantly different among the reference group (i.e., Internet users) and group represented by the dummy variable (i.e., non-users or Internet plus SNS users). The weights created for the sample were used in conducting the analyses. The results for the four models appear in [Table 1](#).

### ***Demographic characteristics, Internet use, and support availability***

Hypotheses 1 and 3 made competing predictions about the associations between perceived support availability and (a) age, (b) sex, (c) education, and (d) race among non-users, Internet users, and Internet users who participated in an SNS. Whereas Hypothesis 1 predicted that the associations between these demographic factors and support availability would be positive and stronger among Internet users than non-users and most positive among Internet users who participated in an SNS (i.e., social enhancement), Hypothesis 3 predicted that these associations would be less positive or more negative among Internet users than non-users and the least positive or most negative among SNS users (i.e., social compensation).

As reported in [Table 1](#), the interactions between both dummy-coded variables and age were significant for perceptions of overall support availability as well as tangible and emotional support availability. The interactions between the no Internet dummy variable and age indicated that the slopes representing the relationships between age and the three measures of support availability among non-users were significantly different from the slopes for Internet users. The interactions between the Internet plus SNS dummy variable and age indicated that the slopes representing the relationships between age and the three

**Table 1.** Results of the regression models for support availability.

	Social support availability (overall)		Emotional support		Informational support		Tangible support	
	$\beta$	<i>t</i>	$\beta$	<i>t</i>	$\beta$	<i>t</i>	$\beta$	<i>t</i>
Block 1: demographics	$\Delta R^2 = .03, p < .001$		$\Delta R^2 = .04, p < .001$		$\Delta R^2 = .05, p < .001$		$\Delta R^2 = .01, p = .02$	
Age	-.10***	-4.39	-.10***	-4.62	-.13***	-5.89	-.02	-0.89
Sex (male = 0; female = 1)	.07**	3.28	.13***	5.90	.11***	5.06	-.01	-0.27
Race (non-White = 0; White = 1)	.07**	3.31	.08***	3.79	.07**	2.99	.02	0.85
Education	.11***	5.10	.09***	4.37	.13***	6.06	.07**	3.15
Block 2: network characteristics	$\Delta R^2 = .08, p < .001$		$\Delta R^2 = .06, p < .001$		$\Delta R^2 = .05, p < .001$		$\Delta R^2 = .09, p < .001$	
Married (not = 0; married = 1)	.26***	12.16	.21***	9.87	.17***	7.70	.28***	13.19
Total network size	.11***	5.08	.07**	3.30	.09***	4.50	.11***	5.04
Core network size	.09***	4.26	.08***	3.80	.12***	5.54	.04*	1.98
Block 3: Internet use	$\Delta R^2 = .01, p < .001$		$\Delta R^2 = .01, p = .001$		$\Delta R^2 = .01, p < .001$		$\Delta R^2 = .004, p = .01$	
No Internet	-.07**	-2.93	-.05†	1.91	-.05†	-1.85	-.06*	-2.43
Internet plus SNS	.08**	3.27	.10***	3.91	.08**	3.12	.03	1.39
Block 4: interactions	$\Delta R^2 = .02, p < .001$		$\Delta R^2 = .01, p < .001$		$\Delta R^2 = .01, p = .01$		$\Delta R^2 = .02, p < .001$	
No Internet $\times$ age	.09**	2.68	.07*	2.08	.06†	1.76	.07*	2.24
Internet plus SNS $\times$ age	-.09**	-2.81	-.09*	-4.58	-.05	-1.64	-.09**	-2.77
No Internet $\times$ sex	.003	0.14	.03	1.14	-.02	-0.69	.02	0.69
Internet plus SNS $\times$ sex	-.01	-0.64	.03	1.05	-.004	-0.15	.02	0.70
No Internet $\times$ race	.03	1.00	.04	1.52	.04	1.56	-.003	-0.11
Internet plus SNS $\times$ race	-.06*	-1.99	-.03	-0.92	-.03	-1.12	-.08**	-2.86
No Internet $\times$ education	-.003	-0.11	-.02	-0.70	-.02	-0.58	.01	0.34
Internet plus SNS $\times$ education	.01	0.23	-.01	-0.19	.01	0.48	.02	0.66
Block 5: interactions	$\Delta R^2 = .01, p = .01$		$\Delta R^2 = .01, p = .001$		$\Delta R^2 = .01, p = .046$		$\Delta R^2 = .01, p = .001$	
No Internet $\times$ married	.03	1.15	.05†	1.66	.04	1.42	-.02	-0.77
Internet plus SNS $\times$ married	-.06†	-1.84	-.05	-1.54	-.04	-1.17	-.06†	-1.91
No Internet $\times$ total network	.06**	2.66	.06*	2.48	.04	1.62	.10***	4.03
Internet plus SNS $\times$ total network	.03	1.00	.03	1.17	.01	0.23	.02	0.79
No Internet $\times$ core network	-.02	-0.76	.001	0.02	-.01	-0.46	-.05†	-1.87
Internet plus SNS $\times$ core network	-.04	-1.49	-.07*	-2.29	-.05†	-1.77	.01	0.39

Note: The reference group for the dummy-coded Internet variables consisted of respondents who used the Internet but not an SNS. In the no Internet variable, Internet non-users were coded 1; in the Internet plus SNS variable, SNS users were coded 1. Results are reported when a given block was added to the model. Model summaries: overall support availability,  $F(23, 2110) = 16.06, p < .001, R^2 = .15$ ; emotional support,  $F(23, 2108) = 13.29, p < .001, R^2 = .13$ ; informational support,  $F(23, 2109) = 12.32, p < .001, R^2 = .12$ ; tangible support,  $F(23, 2110) = 13.08, p < .001, R^2 = .13$ .

† $p < .10$ .

\* $p < .05$ .

\*\* $p < .01$ .

\*\*\* $p < .001$ .

measures of support availability among Internet plus SNS users were significantly different from the slopes for Internet users.

Because the interaction terms for both dummy-coded variables were statistically significant, they were decomposed by computing the simple slopes reflecting the relationship between age and a given type of support availability for each of the three groups. Decomposing these interactions revealed the following: among non-users, age was positively associated with overall support availability ( $\beta = .10, t = 2.23, p = .03$ ) and tangible support ( $\beta = .13, t = 2.83, p = .01$ ), but not significantly associated with perceptions of emotional support ( $\beta = .07, t = 1.50, p = .13$ ). Among Internet users, age was not

significantly associated with overall support availability ( $\beta = -.06, t = -1.52, p = .13$ ), tangible support ( $\beta = -.004, t = -0.11, p = .91$ ), or emotional support ( $\beta = -.06, t = -1.45, p = .15$ ). Among Internet users who also participated in an SNS, age was negatively associated with overall support availability ( $\beta = -.22, t = -5.02, p < .001$ ), tangible support ( $\beta = -.17, t = -3.74, p < .001$ ), and emotional support ( $\beta = -.21, t = -4.66, p < .001$ ). Taken together, these results offer evidence in support of Hypothesis 3a. Although age was positively associated with two of the three types of support availability among non-users, it was not associated with support availability among Internet users, and age was negatively associated with support availability among Internet users who also participated in an SNS. Consistent with social compensation, the association between age and support availability was weaker or reversed among Internet and SNS users.

The interaction between the dummy-coded variable comparing Internet users with users who also participated in an SNS and race was significant for overall support availability and tangible support availability. Because race was a dichotomous variable, these interactions indicated that the discrepancies in overall and tangible support availability between Whites and non-Whites were significantly different among Internet users than among Internet users who also participated in an SNS. Decomposing these interactions revealed that White Internet users reported marginally greater overall support availability than non-Whites ( $\beta = .06, t = 1.87, p = .06$ ), but the difference between Whites and non-Whites was mitigated among Internet users who also participated in an SNS ( $\beta = -.03, t = -0.96, p = .34$ ). For tangible support, White Internet users tended to report more tangible support available than non-Whites Internet users, but the difference was not statistically significant ( $\beta = .04, t = 1.17, p = .24$ ). Among Internet users who also participated in an SNS, however, Whites reported significantly *less* tangible support available than non-Whites ( $\beta = -.10, t = -2.84, p = .01$ ).<sup>1</sup>

As a whole, the preceding results related to race offered some evidence in support of Hypothesis 3d. Consistent with social compensation, the significant interactions indicated that the discrepancy in overall support availability between White and non-White Internet users was smaller among those who used the Internet and also participated in an SNS. The discrepancy in tangible support between Whites and non-Whites was also different among Internet users than those who used the Internet and participated in an SNS. Beyond simply mitigating inequalities, non-White SNS users reported significantly greater levels of tangible support available than White SNS users.

No support was found for the hypotheses related to sex or education. None of the interaction terms involving these variables were statistically significant. Hypotheses 1b and 1c as well as Hypotheses 3b and 3c were not supported.

### ***Network-related factors, Internet use, and support availability***

Hypotheses 2 and 4 made competing predictions about the associations between perceived support availability and (a) marital status, (b) total network size, and (c) core network size among non-users, Internet users, and Internet users who participated in an SNS. Although Hypothesis 2 predicted that the positive associations between support availability and the three network-related factors would be stronger among Internet users than non-users and strongest among Internet users who also participated in an SNS (i.e., social enhancement), Hypothesis 4 posited that these associations would be less positive or more negative

among Internet users than non-users and the least positive or most negative among SNS users (i.e., social compensation).

As reported in Table 1, the interactions between the dummy-coded variable comparing Internet users with non-users and total network size were significant for overall support availability, emotional support, and tangible support availability. These interactions indicated that the associations between total network size and three types of support were significantly different among Internet users than among non-users. Decomposing these interactions revealed that among non-users, total network size was positively associated with overall support availability ( $\beta = .23$ ,  $t = 3.97$ ,  $p < .001$ ), emotional support ( $\beta = .19$ ,  $t = 3.14$ ,  $p = .002$ ), and tangible support ( $\beta = .32$ ,  $t = 5.36$ ,  $p < .001$ ). Among Internet users, total network size was significantly associated with overall support ( $\beta = .06$ ,  $t = 2.16$ ,  $p = .03$ ), but not emotional support ( $\beta = .02$ ,  $t = 0.82$ ,  $p = .41$ ) or tangible support ( $\beta = .05$ ,  $t = 1.88$ ,  $p = .06$ ).<sup>2</sup> As a group, these results provided some evidence consistent with Hypothesis 4b and social compensation. The positive associations between total network size and the three types of support were weaker among Internet users than non-users, although there were no differences between Internet users and Internet users who participated in an SNS.

There was also a significant interaction between the dummy-coded variable comparing Internet users with Internet users who participated in an SNS and core network size for emotional support availability. Decomposing the interaction showed that the association between core network size and emotional support was significant among Internet users ( $\beta = .11$ ,  $t = 3.30$ ,  $p = .001$ ). The relationship between core network size and emotional support among SNS users was not significant ( $\beta < .001$ ,  $t = -0.006$ ,  $p = .996$ ).<sup>3</sup> These results are consistent with Hypothesis 4c and social compensation in that the association between core network size and emotional support availability was weaker among SNS users than Internet users.

Finally, the interaction between the dummy-coded variable comparing Internet users with Internet users who also participated in an SNS and marriage for tangible support approached statistical significance ( $p = .056$ ). Decomposing this interaction indicated that married Internet users reported greater tangible support available than non-married Internet users ( $\beta = .34$ ,  $t = 9.57$ ,  $p < .001$ ). Although the same trend was observed among Internet users who participated in an SNS ( $\beta = .24$ ,  $t = 6.61$ ,  $p < .001$ ), the difference between married and non-married respondents was smaller than among Internet users.<sup>4</sup> These results are consistent with Hypothesis 4a and social compensation in that the difference in tangible support availability between respondents who were and were not married was smaller among Internet users who participated in an SNS than respondents who only used the Internet.

## Discussion

The purpose of the present study was to examine the implications of Internet use for acquiring social resources. Although there is evidence that the Internet can be valuable for gaining access to social support, questions remain about whether some groups benefit more than others from Internet use and how Internet use impacts existing inequities in support availability. Competing perspectives reflecting the notions that traditional inequities in social support availability stemming from specific demographic and network-

related factors are magnified or mitigated by Internet use were evaluated. The results, which are summarized in Table 2, offered some evidence consistent with the social compensation perspective. The findings and their implications for research on digital inequality and social support will be considered in the following paragraphs.

### Internet use and social support

The social compensation perspective is rooted in the idea that, through making it possible to reinforce one's connections with strong ties and expand one's network of weak ties, Internet use may create opportunities to overcome traditional inequities in social support availability. Several findings were generally consistent with this notion. The associations between age and both overall and tangible support were significantly different among Internet users and non-users as well as among Internet users and Internet users who also participated in an SNS. Whereas age was positively associated with overall and tangible support availability among non-users, it was not associated with support

**Table 2.** Summary of the findings.

Demographic or network factor	Support type		
	Social support availability (overall)	Emotional support	Informational support
Age	<i>Non-users:</i> significant positive relationship ( $\beta = .10, p = .03$ )	<i>Non-users:</i> non-significant positive relationship ( $\beta = .07, p = .13$ )	<i>Non-users:</i> significant positive relationship ( $\beta = .13, p = .01$ )
	<i>Internet users:</i> non-significant negative relationship ( $\beta = -.06, p = .13$ )	<i>Internet users:</i> non-significant negative relationship ( $\beta = -.06, p = .15$ )	<i>Internet users:</i> non-significant negative relationship ( $\beta = -.004, p = .91$ )
	<i>Internet plus SNS:</i> significant negative relationship ( $\beta = -.22, p < .001$ )	<i>Internet plus SNS:</i> significant negative relationship ( $\beta = -.21, p < .001$ )	<i>Internet plus SNS:</i> significant negative relationship ( $\beta = -.17, p < .001$ )
Race	<i>Internet users:</i> Whites reported marginally more support than non-Whites ( $\beta = .06, p = .06$ )		<i>Internet users:</i> non-significant difference between Whites and non-Whites ( $\beta = .04, p = .24$ ):
	<i>Internet plus SNS:</i> non-significant difference between Whites and non-Whites ( $\beta = -.03, p = .34$ )		<i>Internet plus SNS:</i> Whites reported less support than non-Whites ( $\beta = -.10, p = .01$ )
Total network size	<i>Non-users:</i> significant positive relationship ( $\beta = .23, p < .001$ )	<i>Non-users:</i> significant positive relationship ( $\beta = .19, p = .002$ )	<i>Non-users:</i> significant positive relationship ( $\beta = .32, p < .001$ )
	<i>Internet users:</i> significant positive relationship ( $\beta = .06, p = .03$ )	<i>Internet users:</i> non-significant positive relationship ( $\beta = .02, p = .41$ )	<i>Internet users:</i> marginally significant positive relationship ( $\beta = .05, p = .06$ )
Core network size		<i>Internet users:</i> significant positive relationship ( $\beta = .11, p = .001$ )	
		<i>Internet plus SNS:</i> non-significant relationship ( $\beta < .001, p = .996$ )	

Note. All reported findings are consistent with social compensation.

availability among Internet users and negatively associated with support availability among Internet users who participated in an SNS. A similar trend was observed for race, where the discrepancies in overall and tangible support availability between Whites and non-Whites were different between Internet users and Internet users who also participated in an SNS. Among Internet users, there was no difference between Whites and non-Whites in tangible support and non-Whites reported marginally less overall support available. Among Internet users who also participated in an SNS, however, non-Whites actually reported greater levels of tangible support than Whites and there was no difference in overall support. Taken together, these findings indicate that the positive associations between support availability and both age and race were weaker or even reversed among Internet and/or SNS users. Consistent with the social compensation perspective, traditional inequities in support availability stemming from age and race were less evident or completely absent among Internet and/or SNS users.

The results for total network size and, to a lesser degree, core network size also generally fell in line with social compensation. Among non-users, total network size was positively associated with overall, emotional, and tangible support availability. These associations were significantly weaker among Internet users. Similarly, the positive association between core network size and emotional support availability was significantly weaker among SNS users than among Internet users. These trends were consistent with the social compensation perspective in that inequalities in support availability stemming from network size were less evident among Internet or SNS users.

Taken as a whole, the findings from this study suggest that Internet use may provide opportunities to mitigate inequities in support availability – particularly those related to age, race, and total network size. Moreover, the results indicate that making connections with others is likely an important mechanism. In the case of age and race, participating in an SNS was particularly valuable. Given prior research showing that SNS users' networks consist of both friends and family as well as others with whom the user does not share a close relationship (Hampton et al., 2011; Manago et al., 2012), it seems reasonable that connecting with both strong and weak ties is a primary reason that the traditionally disadvantaged benefitted from Internet use. This conclusion is consistent with the results of other research examining the implications of Internet use for social resources (Katz & Rice, 2002; Rainie & Wellman, 2012). Yet, in the case of total network size, simply being an Internet user was sufficient. In this instance, the various other means of using the Internet to connect with strong ties (e.g., e-mail, instant messaging) and weak ties (e.g., online communities, blogs) may have been adequate. It could also be that just knowing that one has the potential to connect with others might influence support availability perceptions.

In addition to the results consistent with social compensation, it is important to consider those hypotheses that were not supported. Although two of the findings for marital status approached statistical significance ( $p < .10$ ), the results for sex and education were consistently non-significant. Internet use did not impact the associations between these two factors and any measure of support availability. These non-significant results may stem from a lack of motivation or ability to use the Internet to bolster one's support recourses among people who are traditionally disadvantaged in terms of support availability (i.e., men and people with lower levels of education). Despite having the potential to do so, male Internet users may be unmotivated to increase their

access to support. Indeed, researchers have reported evidence that males desire lower levels of support than females (Xu & Burleson, 2001). The lack of findings related to education may be an artifact of insufficient ability. People who have lower levels of education may lack the skills to effectively expand their social networks. Previous research indicates that Internet use skill can be an important determinant of the behaviors people perform online and the resources they accrue (Hargittai & Hinnant, 2008; Zillen & Hargittai, 2009)

### ***Implications for digital inequity and social support research***

The results from this study help inform scholarship focused on digital inequality and social support in several ways. As opposed to being the site of inequality, this project examined Internet use as a factor that has consequences for expanding or mitigating traditional inequalities in support availability stemming from demographic and network-related factors. Beyond demonstrating the possibility of social compensation, the findings from this study related to SNS use tentatively point to a specific mechanism that explains why Internet use is consequential. It appears that gaining access to strong and weak ties is one reason that individuals are able to mitigate some traditional inequities in support availability.

More broadly, the results of this study advance scholarship on the social enhancement and compensation perspectives. Research exploring these two perspectives tends to be rooted in the implicit or explicit assumption that one perspective is (more) accurate. Internet use is assumed to have consistent and uniform effects. Yet, it seems plausible that social enhancement is observed in some situations, whereas compensation predominates in others. Indeed, the findings from this study stand in contrast to other research that has reported evidence consistent with social enhancement (e.g., Hargittai & Hinnant, 2008; Pearce & Rice, 2013; Zillen & Hargittai, 2009). The more appropriate question for scholars may involve the conditions under which enhancement and compensation are more and less likely. It may be that the implications of Internet use for digital inequality are contingent upon the context in which the Internet is used, the source of the inequality (e.g., age versus network size), or some combination of these factors. For example, Internet use may favor those who are traditionally advantaged in activities related to acquiring political or financial information (Hargittai & Hinnant, 2008), but disproportionately benefit the disadvantaged in gaining access to social resources. Fully understanding digital inequality requires thinking in more nuanced ways about when, to whom, and why social enhancement and compensation processes occur.

The results of this project also inform scholarship on social support. Although several studies have shown that support available in various online contexts such as blogs, SNSs, and MMOGs can be a valuable coping resource (Kaczmarek & Krazkowski, 2014; Oh & Lee, 2012; Rains & Keating, 2011), the Internet and specific technologies tend to be studied as constants. Users of a specific technology like blogs are compared with other users of that technology. This study advances research on social support by examining the implications of Internet use relative to non-use and helping to better understand its consequences for traditional inequities in support availability. In addition to demonstrating the benefits of Internet use for offsetting traditional support inequities, the results highlight the opportunity to increase one's social connections as a key contributor to such benefits.



The findings underscore the significant implications of the digital divide. Researchers have shown that non-users tend to possess fewer resources such as income and education than those who have Internet access (Pearce & Rice, 2013; van Deursen & van Dijk, 2014). The results of this study and other research (Hampton et al., 2011) suggest that social support is yet another way in which people who do not use the Internet are disadvantaged. Compared to the other two groups, non-Internet users in this study reported the lowest levels of support availability. It is unclear whether the non-users in this project were “have-nots” who lack the ability to acquire Internet access or “want-nots” who have the means but choose not to use the Internet. Regardless, it appears that non-users are doubly disadvantaged in not only having less support available but also lacking what the results of this project suggest is a fairly valuable mechanism for bolstering support resources.

The findings from the current study also add to existing research examining demographic correlates of social support availability. Surveys with nationally representative samples have tended to find that women and White Americans as well as those who are older and more educated report higher levels of support availability (Bertera, 2005; Moak & Agrawal, 2010; Shaw, 2005; Shaw et al., 2004; Wethington & Kessler, 1986). The data from this project showed mostly similar trends. The results reported in Table 1 indicate that females, Whites, and respondents with greater education reported greater levels of available support overall. There was, however, one finding that was discrepant from previous survey research. Age was inversely associated with support perceptions – although this association was contingent upon whether the respondent was an Internet user. Previous survey research has shown that age is positively associated with perceptions of general support availability (Wethington & Kessler, 1986) and support available from neighbors (Shaw, 2005) and family members (Shaw et al., 2004). Because the data from these studies were collected during the 1970s (Wethington & Kessler, 1986) and mid-1990s (Shaw, 2005; Shaw et al., 2004), the discrepant finding in the present investigation may be an artifact of the widespread diffusion of the Internet and accompanying means of communication. Indeed, the one exception to the previous trend was a survey conducted during 2004–2005 in which perceived support was negatively associated with age (Moak & Agrawal, 2010).

### ***Limitations and directions for future research***

The limitations of this project warrant consideration. Some researchers have argued that perceptions of social support availability are determined in part (Lakey & Cassady, 1990) – though certainly not completely (Bolger, Zuckerman, & Kessler, 2000; Uchino, 2009) – by dispositional factors. In this context, such an argument would suggest that perceptions of support availability might be responsible for Internet and/or SNS use. In other words, the findings from this project could be an artifact of people who perceived more support available being drawn to the Internet. To be clear, the data from this project were derived from a cross-sectional survey and, as a result, it is not possible to make any definitive claims about causality. However, the nature of the analyses conducted for this project effectively rule out this alternate explanation. In the analyses, Internet users were evaluated relative to other Internet users. For example, the association between core network size and support availability was examined only among Internet users (and then compared to the association between the same two variables among non-users). Examining the associations

between demographic/network-related factors and support availability within Internet use groups made it possible to account for any general differences in perceptions of support availability that distinguish Internet users, non-users, and SNS users. Even if people who perceived high levels of support availability were drawn to the Internet, it should not impact the association between a factor like core network size and perceptions of support availability within the Internet user group. In short, readers can be confident that the findings are not an artifact of people with higher levels of support being more likely to use the Internet.

A second limitation of this project involves the levels of support availability reported by the sample. Although the sample was recruited using a random-digit dialing procedure, it largely consisted of people who reported what might be considered at least adequate levels of support available. The sample mean for the overall measure of support was approximately 4 on 5-point scale, and only 12% of respondents reported an overall score equal to or below the scale midpoint. As such, it is important to note that the results from this study might not extend to people who perceive themselves to have substantial deficits in available support.

Several directions for future research should also be considered. The results of this study offer evidence that non-users are unlike Internet users and SNS users in several important ways related to support availability. It would be worthwhile to further investigate how and why non-users acquire social support. Interviews and ethnographic studies could be particularly valuable to explore the support needs and resources of non-users. Additionally, it would be useful to develop means of improving social support access among non-users. Given the robust role that perceived and received support can play in coping with a wide variety of life stressors, it is important to develop mechanisms for increasing access to this resource among specific groups such as Internet non-users. Support interventions might be developed to target non-users or providing non-users with Internet access might be included as a component of existing support interventions. Finally, research could be conducted to further evaluate the conditions under which social enhancement and compensation occurs. As previously noted, it seems likely that these processes are limited to particular groups and resources. Identifying trends among the specific demographic or psychographic groups and resources (e.g., job-seeking skills and social support) that tend to be impacted by Internet use is an important step.

## **Conclusion**

Despite longstanding interest in the implications of Internet use for exchanging social resources such as social support, questions remain about whether some groups benefit more than others from using the Internet. The results of this project offer some evidence consistent with the social compensation perspective. Traditional inequities in social support availability stemming from several demographic and network-related variables persisted among non-users but were reduced among Internet users or Internet users who also participated in an SNS. Moreover, the results suggest that one operating mechanism explaining the benefits of Internet use involves the potential to connect with others. Although these results highlight the promise of Internet use for reducing support-related inequities, continued research is essential to fully understand the implications of the Internet for social support and digital inequality.

## Notes

1. Although the interactions comparing Internet users and non-users were not statistically significant, the simple slopes for non-users are provided for reference. White non-users reported greater overall support availability than non-White non-users ( $\beta = .12$ ,  $t = 2.66$ ,  $p = .01$ ), but the difference in tangible support was not statistically significant ( $\beta = .03$ ,  $t = 0.75$ ,  $p = .46$ ).
2. Although the interactions comparing Internet and SNS users were not significant, the simple slopes for SNS users are provided for reference. Among Internet users who participated in an SNS, total network size was positively associated with overall support ( $\beta = .11$ ,  $t = 2.89$ ,  $p = .004$ ), emotional support ( $\beta = .08$ ,  $t = 2.09$ ,  $p = .04$ ), and tangible support ( $\beta = .09$ ,  $t = 2.42$ ,  $p = .02$ ).
3. For reference, the relationship between core network size and emotional support among non-users was statistically significant ( $\beta = .11$ ,  $t = 2.24$ ,  $p = .03$ ).
4. For reference, married non-users reported greater tangible support than non-married non-users ( $\beta = .29$ ,  $t = 6.56$ ,  $p < .001$ ).

## Acknowledgements

The authors thank Lee Rainie of the Pew Internet and American Life Project for making available the data used in this study as well as the editor and three anonymous reviewers for their helpful feedback.

## Disclosure statement

No potential conflict of interest was reported by the authors.

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